

Web purists are leery of Lotus' Domino server, US West's Motti Goldberg found. The Enterprise Network, page 51

Punchy Web comes with a price. Skills both techie and nontechie. Corporate Strategies, page 61

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Scalability concerns grow

► Windows NT not enterprise-ready, critics claim

By Laura DKID

TO QUELL CRITICS who charge that Windows NT lacks the necessary processing power to be an enterprise server, Microsoft Corp. next month will host a "scalability day" to demonstrate forthcoming clustering and enterprise-class options for Windows NT.

The event is targeted at users who are increasingly frustrated by the Redmond, Wash.-based company's repeated delays in delivering even basic two-way Windows NT Wolfpack clustering.

"I'm not sure Microsoft really has a clue about clustering or scalability," said Don Ramsey, information technology archi-

tect at Dallas Children's Medical Center in Dallas.

Analysts say Microsoft has a lot to prove on the scalability front.

Microsoft officials confirmed that scalability day will be May 20 in New York. CEO Bill Gates; Paul Maritz, group vice president; and Deborah Willingham, vice president of the enterprise customer unit, will address the

Scalability, page 16

Hold that thought, IS tells E-mailers

By Kim Girard
and Barb Cole-Gomulski

FOR PAUL EVANS, an IS analyst at the Federal Aviation Administration in Washington, growing E-mail volume became a problem that couldn't be ignored.

So the FAA, which has 36,000 users on Lotus Development Corp.'s CC-Mail, imposed a 2M-byte limit on message size during the day and a 5M-byte cap at night. It also reserved file transfer protocol sites for larger file transfers.

With corporate use of electronic mail exploding and the Internet beckoning, policies such as the FAA's are becoming more widespread. And a grow-

Hold that thought, page 127

New laptops push envelope at both ends

By Mindy Blodgett

THE LAPTOP MARKET is taking off — in opposite directions.

On the low end are ultra-portable computers. On the high end are heavy-duty desktop replacements, called lugablers.

19 Ultra-ultraportables weigh less than a pound, have up to 8000 hours of battery life and offer 6- to 10-in. screens. But these stripped-down models lack CD-ROMs and other glitzy features and are essentially limited to

Portables, page 14

Texaco IS rebels open cash gusher

Maverick developers at Texaco, Inc. are flouting conventional wisdom about data warehousing with stunning success. One of their applications yielded a thirtyfold return on investment by showing where more oil could be extracted from existing wells.

The team's formula: Cultivate a grassroots network of internal customers and quickly build local databases that can solve business problems.

But can this popular, bottom-up approach keep working as user demand grows?

Managing, page 76

It's thumbs-up for HP and IBM, according to Computerworld's customer satisfaction survey of 1,690 IS managers. HP and IBM each placed first in three of the

10 categories, including HP's win in printers and IBM's in databases. Users were less pleased with Sybase and Computer Associates. **Buyer's Guide, page 83**

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Realizations to 32-bit app migration remain strong. Page 2

MAINFRAME CLUSTERING

IBM makes improvements to parallel system software. Page 3

Jump-starting OpenIngres

Computer Associates puts muscle behind database. Page 6

OWENS CORNING GOES PAPERLESS

Insulation maker on track to save \$50 million annually. Page 8

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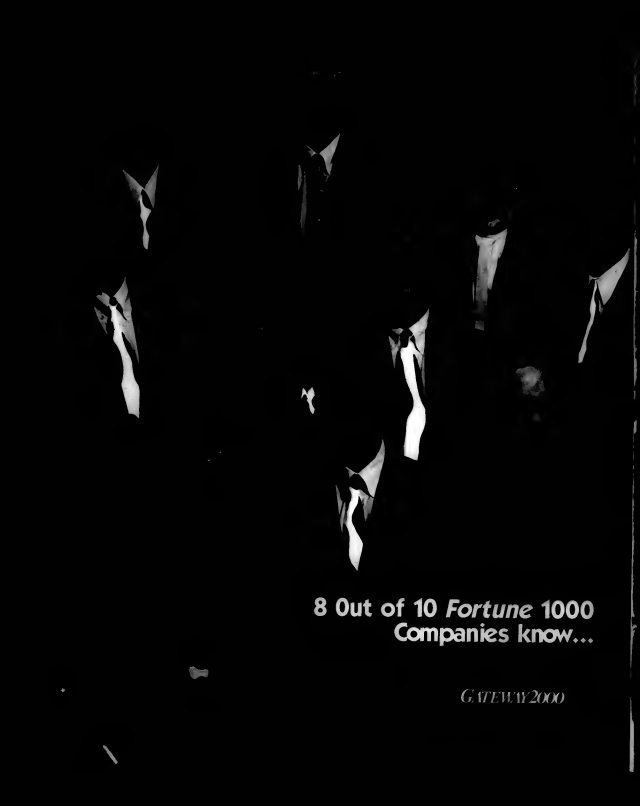
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Companies know...**

GATEWAY2000

• **Plasma** is the liquid part of blood. It contains dissolved nutrients, hormones, and waste products.

- There are meaningful guarantees on internal controls, but the tools to deliver on them are just beginning to ship.

100 **Wish** plays catch-up online with new strategy designed to win the perception it is an Internet also-ran.

- **Software migration package** due from test-tool company targets users who are forced to upgrade database versions.

16 Windows NT laptops are popular, despite problems with portability.

IT Circle near group struggles to keep educational conference going despite competition from Oracle.

3-4 All bidding will occur in the next two to three months and will rely heavily on college students.

44 Metacritic's Portman drop, and the future looks scrappier Web site up. David Moschella writes.

20 Readers testified that Frank Hayes, who admits a _____ pain than some _____

4.3 IBM's eServer Business Storage is made a faster and easier to move data among mainframe disk arrays.

PCs will be easier to manage and write software for under new Virtual spec being released for 1448 models, users said.

47 Developers hope secure Java will let
them write business-critical applications,
not just animations.

47 **Sybase** *forwards intent to upgrade with plan to stop support for older versions of the database*

Five million cases of alcoholism
 10 million cases of drug addiction
 100 million cases of smoking
 1 billion cases of drinking

9) **Wardrobe robbery and time.** Following **Wardrobe**'s effort to call in several debts.

89 **Strengthen your Web** as quick, cheap option to find legacy data.

20 **5-continuum requires being between**
 Web sites and legacy data – Nuts that
 delivered surprising results for FedEx.

29 2-antennulae is becoming common, but users are still feeling around to find how their sheets will work.

4-2 Microsoft's upgraded to client/server system in GrandCafe, easing planning and construction costs.

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20 **Pharmacokinetics**

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shows 20% off the price are competing for the same talent pool.

● **Business skills** are in huge demand, but these jobs may not be suited for everyone.

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Mail Boxes Etc. links sites via intranet

By Justin Hibbard

MAIL BOXES ETC. USA, INC. is one of several franchisers that plans this year to streamline its business processes by extending its intranet to franchisees.

The San Diego company expects to save between \$12,000 and \$14,000 per month by cutting dial-up connections. It also hopes to reduce costs by posting documents to its intranet rather than sending them by fax or mail.

But the company's greatest advantages may come from speeding up communications with franchise owners, said Jim Amos, president and chief operating officer at Mail Boxes Etc. "I don't think there is anything for the future of franchising as important as the ability to communicate in real time," he said.

Franchisees lose sales and marketing opportunities in regions where announcements of promotions and line expansions may not reach a franchise owner for a week or more, Amos said. An intranet informs all franchisees immediately and lets them provide immediate feedback. They also can order supplies on the intranet.

The company expects within three weeks to contract with an Internet service provider to offer Internet connections to its 3,400 franchise locations worldwide. Franchisees will use the Internet to access Mail Boxes Etc.'s intranet instead of using expensive dial-up connections to access the company's wide-area network.

The company will replicate the contents of its OS/a-based WAN servers to intranet servers based on Microsoft Corp.'s Windows NT and Internet Information Server. The replication will take about two months and will cost about \$60,000, said Ray Wahoff, director of manage-

ment [S at Mail Boxes Etc.].

But for such a system to work, franchise owners must agree to use it. And that can be tricky, said Richard Villars, an analyst at International Data Corp. in Framingham, Mass.

"Most times, the franchisee would like some choice in terms of the level of service and commitment. [But] the franchiser would like it to be homogeneous," Villars said.

The company requires franchisees to pay \$19.95 per month to offset the cost of dial-up connections and will continue to require that amount to pay for Internet connections.



Andy Ekedahl, owner of an Mail Boxes Etc. store in Burnsville, Minn., said he is interested in the company's plan to allow franchisees to resell Internet accounts to customers.

The prospect of selling Internet access gives franchisees an incentive to use and support the company's extended intranet. "If you want to do this, you have to explain to the franchisee how it's going to make him money," McInnes said.

Other firms that are extending Internet and intranet access to franchisees include Marriott International, Inc., Burger King Corp. and Taco Bell Corp.

Mike Pusateri, vice president of interactive marketing at Marriott, said providing an intranet link to franchisees is quickly becoming a matter of staying competitive in the franchise world. □

UP FRONT Open systems pain

Choice isn't what it used to be. Not long ago, the open systems advocates were trumpeting the virtues of pick-and-choose systems. Buy one component here, another there, stitch them together, save money and live longer.

But at what cost? As our giant customer satisfaction survey beginning on page 83 demonstrates, the happiest users tend to be the ones with the least choice. To wit:

- Mainframe users are happier with their vendors and products than users of distributed systems, across the board. In fact, the lowest customer satisfaction score in mainframes is higher than the highest score among PC or Unix server users.

- AS/400 users are on cloud nine. Users rave about the AS/400's quality, service and support. And guess what? The AS/400 is the most proprietary system on the planet.

AS/400 users are on cloud nine.

Does this mean that the whole open systems thing was a mistake? Not at all. But the research demonstrates that the image of open systems as a panacea is a myth. Despite advertising claims, vendors have been unable to duplicate on networks the reliability and manageability of monolithic systems.

It is my surprise that "integrating incompatible systems" consistently sits near the top of every survey of issues on the minds of IT managers.

The IT environment is moving toward distributed systems because they better support the more decentralized shape of business. But they are also more complex to build and manage. Choice brings with it some pain. You can look it up.

Paul Gillin, Editor
Internet: paul.gillin@cw.com

THE FIFTH WAVE BY RICH TENNANT



"Well, this is festive—a miniature intranet amidst a swirl of Java applets."

Microsoft is listening

► Vendor is taking steps to reduce overkill on update packages and fixes, and slows pace on new releases

By April Jacobs
and Sharon Gaudin

OVERWHELMED USERS are telling Microsoft Corp. to hold off on 32-bit software and cut back on updates and fixes. Evidence is mounting that the Redmond, Wash.-based vendor is listening.

The company has been pushing a reluctant user base to adopt a 32-bit platform. For example, it has been slowly dropping support for 16-bit Windows 3.x in new versions of popular packages such as Microsoft Office, Visual Basic and Visual Studio. Microsoft also said it would restrict cost-cutting tools such as its Zero Administration for Windows initiative to 32-bit users.

Users also have been crying foul over overlapping mail strategies and an endless stream of updates, patches, upgrades, beta versions and service packs.

"I think the reality is that in the business community, there are a large number of 3.1 environments, and they can't ignore that."

— Frank Delagry, Polaroid

The sheer volume of new releases is overwhelming, and we've had less time to spend on some of those new releases. We're missing some opportunities because we don't have time to look at the number of things coming out," complained David Lingren, director of advanced development at Dunsage, the information technology division of Wall Street powerhouse Dun & Bradstreet Corp.

Recent moves by Microsoft indicate it is changing its tune on some fronts. For example, it has taken the following steps:

- The company announced two weeks ago that it would extend its Zero Administration tool kit to Windows 95 users. The tool kit will let Windows 95 users automate tasks such as software distribution and manage PCs from servers more efficiently.
- Microsoft said it will merge its mail and messaging systems, Exchange and Outlook. That is a clear response to customers who say they are overwhelmed with what they see as too many

mail choices.

- The company began advising users to standardize operating systems and issue patches and service packs selectively, saving the lion's share of changes for major product revisions.

- Microsoft, in some cases, has slowed the pace of developer releases, eliminating at least one program for its Visual C++ product that was inundating customers with updates.

Microsoft has little choice but to listen to users: The latest numbers from Dataquest in San Jose, Calif., show that 80% of corporate desktops still use Windows 3.x.

"We want to be able to give users functionality as it becomes available. But, on the other hand, we realize that corporations want to put something and stay with it," said Larry Berridge, a desktop product manager at Microsoft.

"I'm sure Microsoft would like everyone to upgrade more quickly to 32-bit, but there are lots who haven't," said Larry Garden, senior information systems manager at Brewster Retail, Inc. in Mississauga, Ontario.

"I think the reality is that in the business community, there are a large number of 3.1 environments, and they can't ignore that," said Frank Delagry, information systems manager at Waltham, Mass.-based Polaroid Corp.

Microsoft also is trying to address objections to its large number of service packs, add-ons and upgrades.

For example, Lingren credited Microsoft with rethinking the

speed of some releases. A special subscription program that allowed developers to automatically receive new versions of the Visual C++ development tool on a quarterly basis has been eliminated, he said.

"A few weeks ago, I received a letter saying that due to feed



back they had received from developers, [Microsoft] re-evaluated the program and decided it was too much change, too frequently, and they're discontinuing the practice," Lingren said.

INTERNET UPDATE

Microsoft also plans to provide users with Internet Update Manager in Memphis and Windows NT 5.0. The software, which resides within the operating system on the client, will update drivers from a corporate World Wide Web server and download patches and service packs automatically at the discretion of the information systems manager.

But this won't help users who want to stick with Windows 3.x, nor will it help users struggling with the problem today because the two operating systems aren't due out until late this year or early next year □

Preliminary specs for Windows PCs aim to ease use and manageability. Page 43

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"If you need to know what's going on in the industry but aren't sure your PC got a recent update at our toll-free number."

IBM makes merging iron easier

By Tim Ouellette

IBM is trying to make it easier for users to cluster their mainframes.

The company last week announced new features for parallel sysplex, its mainframe clustering scheme, that lower the barriers for users considering such a move.

The features, available only on IBM's new G3 line of CMOS machines, include fewer stand-alone hardware requirements, less processing overhead and the capability for users to target specific applications to specific processors in a cluster.

Users have shown interest in mainframe clustering to reduce software costs and guarantee application availability. But the migration process has been slow (CW, March '97).

TWO COSTLY

Some managers at midsize data centers have been hesitant to even consider clustering, partly because they would have to buy extra coupling hardware, which directs traffic between mainframes (see chart).

"A lot of our customers have asked us to reduce the ante-up costs," acknowledged George Walsh, a director for IBM's S/390 hardware business. So in July, IBM will free users from the separate charge for a coupling facility. Instead, users can turn a spare mainframe processor into an internal coupling facility (ICF) at a lower cost.

SOUND OFF!



PHOTOGRAPH BY JAMES HARRISON

But users at large data centers say they probably would use the ICF only as a backup. A processor that doubles as an ICF could be a problem if it fails.

"The issue would be availability. We wouldn't want to lose both a coupling facility and a [mainframe] machine," said Mark Krause, a senior technical analyst at Commonwealth Edison Co. in Chicago.

A Hyperlink feature due in July will slash the processing overhead related to managing clusters. Previously, overhead sapped as much as 80% of processing power, but Hyperlink will cut that to 10%.

"IBM is providing additional functions to make this stuff more manageable," said Carl Gerner, its analyst at Meta Group, Inc. in Stamford, Conn. With the changes, "the overhead associated with this clustering is nowhere near what IBM first projected," he said. □

When will users be operating a multisystem parallel sysplex?

Not in foreseeable future 3%



Sites with more than 500 MIPS of mainframe capacity

Base: 33 data center managers

Not in foreseeable future 25%



Sites with 200 to 500 MIPS of mainframe capacity

Base: 17 data center managers

*Includes some test-only parallel sysplexes

Source: The Clipping Group, Inc., Wellesley, Mass.

IS RE-ENGINEERING STILL RELEVANT?

YES! says Cambridge Technology Partners' Mike Korychinsky (right). In a rapid-fire business world, organizations are turning to a more agile, leaner form of re-engineering to keep up.

NO! says Collaborative Strategies' David Coleman (left). How can you defend a "revolution" with a 70% failure rate? Re-engineering ignores the nature of processes and, more important, it ignores people.

For the rest of the debate, see in Depth, page 95

3Com advances LANplex line

By Bob Wallace

3COM CORP. is preparing a new version of its LANplex data center switch in an effort to provide its users with advanced switching functionality in a less expensive and more powerful package. Computerworld has learned.

The switch will let information systems managers substantially boost backbone network performance by including high-speed routing of multiple protocols. That simplifies network administration, analysts said.

"We'll have a next-generation

LANplex switch that can route at 30 million packet/sec. by year's end," said Ron Sege, vice president of the Santa Clara, Calif., vendor's 3Com Systems switching group.

The as-yet-unnamed system will be based on more powerful application specific integrated circuits (ASIC) and processors, Sege added. ASICs are the brains of a switch.

Today's most advanced LANplex routes packets at about a million packet/sec.

A key difference between the LANplex and competing switch-

es is that the LANplex will be able to route more protocols. It will handle IP, Novell, Inc.'s IPX and possibly Apple Computer, Inc.'s AppleTalk. Sege said.

RETAINED INTEGRITY

Details are sketchy, but Sege said the next-generation LANplex "will not obsolete existing products and will retain the software integrity LANplexes have today." 3Com offers two LANplex lines: the 6000, which was announced in early 1994, and the 2500.

"This sounds as if it will provide a great migration path for users who've already invested in LANplexes, because it will carry them into a higher-speed world," said Nick Lipps, president of Strategic Networks Consulting, Inc. in Rockland, Mass.

"But on the downside, there's a lot of time between now and then, and some smaller companies are already shipping this type product," Lipps said. "How much market share will they lose by the time they get the new system out?"

Competitors include Extreme Networks, Inc. in Cupertino, Calif.; Ipsilon Networks, Inc. in Sunnyvale, Calif.; and Xylan Corp. in Calabasas, Calif.

3Com officials wouldn't disclose pricing.

The system will support Fast-IP, 3Com's version of Layer 3 switching. Layer 3 switching calls for advanced and high-speed routing functionality to be built in to LAN switches. □

Bull offers GCOS users CMOS

By Tim Ouellette

BULL H.M. Information Systems, Inc. is grabbing mainframe CMOS technology by the horns.

The Billerica, Mass., firm last week announced two CMOS air-cooled mainframe models designed to keep its users loyal to its GCOS line of proprietary mainframe systems.

The models, named Jupiter and Artemis, offer Bull's 3,000 customer sites worldwide the opportunity to eventually replace water-cooled mainframes with smaller but similarly powerful CMOS machines that cost less and save energy.

"We were pleased with what we saw, and it looks like they've answered our questions in terms of the future of the hard-

ware platform," said Ted Hoffmann, IS director at Graybar Electric Co., a St. Louis electricity distributor.

"Bull's customers need the scalability and cost reduction of its next-generation CMOS technology," said Mike Kahn, CEO of The Clipping Group, Inc. in Weybridge, Mass.

The Jupiter model, the DPS 9000/700, is a higher-end system that will let users trying to update GCOS applications add TCP/IP support and interoperability with Unix servers. The Artemis DPS 7000/MTS will replace Bull's current midrange line of mainframes.

Jupiter costs from \$650,000 to \$7 million. Artemis costs from \$75,000 to \$4.5 million. Both will ship next month. □

Tools connect Unix, NT islands

► Unix users tap in to NT applications

By Jankumar Vijayan

UNIX 386/486 aren't rushing to port their business-critical applications to Windows NT. But some early users are employing a new class of tools designed to forge a tighter connection between the two worlds.

Integrating Unix and Windows NT systems lets users retain their investments in Unix while tapping in to the advantages of NT, such as its large base of office productivity software, observers said.

The new integration tools and interoperability suites extend integration beyond remote login, file access and print services to full-fledged sharing of directories, mail, messaging services and applications.

HARD WORK

But an integration project can be difficult and costly, analysts said. And the technologies may work only in certain application environments.

"Integrating the two environments is an enormous task," said Dave Hardin, team leader of information technology services at Star Enterprises in Delaware City, Del. "But there are

TIGHT LINKS

New users are integrating Windows NT/Unix

- File system integration
- Directory sharing
- Application sharing
- E-mail integration
- Porting Unix applications to Windows NT
- Emulation

some tools that help," he said.

Just last week, Hewlett-Packard Co. announced Enterprise File System, which lets technical users transparently share applications and data between Unix and Windows NT systems.

And Softway Systems, Inc. in San Francisco this week will upgrade its OpenNT porting tool to let users port Unix graphics applications to NT and provide support for mixed networking.

Products from Citra Systems, Inc. in Coral Springs, Fla.; Insignia Solutions, Inc. in Santa Clara, Calif.; Tektronix, Inc. in Wilsonville, Ore.; and others al-

low users to access Windows of office productivity applications from Unix workstations.

And tools from companies such as Softway and DataFocus, Inc. in Fairfax, Va., let users port applications to NT while retaining a single code base for both environments.

The products complement technologies such as Sun Microsystems, Inc.'s Network File System and the Common Object Request Broker Architecture middleware to provide file-, print and application-sharing services in mixed environments.

"Tools like this bridge the gap between Unix and Windows NT," said Eric Bradac, systems administrator at Western Sugar Co. in Denver.

The company plans to use Softway's OpenNT to administer its Unix servers from Windows NT workstations.

NASA's Langley Research Center in Hampton, Va., uses Insignia's Ntbridge server to let users open electronic-mail attachments created in Windows environments from Unix workstations.

"If we didn't have this particular setup, we would have probably had to buy separate PCs or write programs to do all sorts of

New Unix-NT products from Digital

Digital Equipment Corp. this week will announce new middleware and services for integrating its Unix and Windows NT environments.

The Maynard, Mass.-based company also will announce new partners that will help it provide cross-platform application development tools, NT ports and full NT versions of Digital Unix applications.

The announcements are part of Digital's ARCConnect for Unix program, which is aimed at Unix/NT integration. The program was launched in September.

"This is a program aimed purely at Digital's installed base," said James Gordon, an analyst at Technology Business Research, Inc. in Hampton, N.H.

"It is part of this whole Windows NT threat by Digital," said Bob Young, technical support manager at Knight-Ridder MediaStream in Philadelphia.

"If they want to integrate Windows NT [into Unix and OpenVMS environments], they obviously have to do something with the middleware," Young said.

The latest enhancements to the ARCConnect for Unix program include new releases of Digital's DECconnectQ and Sunwayline, Calif.-based BEA Systems, Inc.'s ObjectBroker and Tarsule software, all of which support Digital Unix and Windows NT. The middleware allows users to share, distribute and manage applications between the two environments.

Digital will also announce three new ARCConnect services: Application Connectivity Services that link Windows NT/Unix applications, Application Migration Services that move applications between Unix and Windows NT, and Application Services that build new Windows NT applications. — Jankumar Vijayan

file conversions," said Roland Wallner, a systems administrator at NASA.

Star is using Ntbridge from DataFocus to port some of its Unix applications to NT. "The base software runs on both NT

and Unix. This means we can grow functionality on NT without having a big impact on the Unix code," Hardin said. "This way, we have the flexibility of slowly migrating to NT over time." □

GE venture developing 'net purchasing system

By Mitch Wagner

A SPLIT-OFF of General Electric Co. has taken a significant step toward upgrading its Internet-based service designed to help Fortune 1,000 companies manage their supply chains.

The goal is to reduce time, money, paperwork and effort in bidding for and buying products online. That includes electrical components, industrial equipment and office supplies.

The company, TPN Register, has selected a start-up financed by Gartner Group, Inc. to rewire the software used by the supply-chain service.

TPN Register, in Bethesda, Md., decided to outsource the project because "we didn't have the Internet expertise to keep it going at a break pace, to develop the product to where we wanted it to be," said program

manager Steve Kovacs.

TPN Register tapped EC Cubed, Inc., a 50-person start-up in Wilton, Conn. EC Cubed is 40% owned by Stamford, Conn.-based Gartner.

EC Cubed will focus on TPN Register, which was designed for collecting bids and quotes for supply contracts. EC Cubed will build document-management features in to the Internet site so companies can post specifications and proposed contracts and collaborate on rewriting the documents.

The company will also build client software that will run as an extension to a World Wide Web browser. Users then will be able to store and work with information off-line while disconnected from the Internet.

TPN Register started out as GE's own supply-chain network. The industrial giant began do-

ing business with its suppliers over the Internet in 1994. But on April 1, GE spun the Trading Process Network (TPN) into a separate company, with a goal of licensing the software and services to other Fortune 500 companies.

TPN Register is also backed by New York-based Thomas Publishing Co., which makes catalogs of industrial supplies.

There are other players in this market, including Nets, Inc. in Cambridge, Mass., chaired by former Lotus Development

Corp. head Jim Marzi. Also, The Chase Manhattan Bank Corp. and BVR LLC, both in New York, in December launched a joint venture called Intellicity Electronic Commerce LLC, for routine purchasing [C.W. Dec. 2, 1996]. And about a dozen Fortune 500 companies, including American Express Corp., Chase and IBM, are looking to develop electronic commerce standards for routine purchases [C.W. Nov. 11, 1996].

TPN Register is the latest in a

series of steps that GE is taking to broaden its place as a vendor — as well as a user — of electronic-commerce services.

GE and Netscape Communications Corp. are partners in the Actra joint venture, which is charged with providing electronic-commerce software and services to businesses.

GE Capital Services, the company's financial services unit, created a consulting practice for internal use and eventually plans to offer the service to outside customers, too. □

Corrections

Because of a reporting error, a story in the April 14 Computerworld stated incorrectly that Intelcon Graphics, Inc. (IGI) invested in Navo Communications, Inc. in Sunnyvale, Calif. Rather, Wei Yen, a former SGI executive, is president and CEO of Navo. Also, the name of the only company to ship a computer with Navo's browser is HDS Network Systems, Inc. in King of

Prussia, Pa., not Hitachi Data Systems Corp.

Because of a reporting error, a Marketplace article in the Jan. 13 issue contained incorrect product information about low-end uninterruptible power supply units from Best Power, Inc. in Needham, Wis. Patriot 240, 480Vas costs \$179. Patriot 420, 420Vas costs \$179.

The chart with "IBM reeling up

Ramac" in the March 17 issue included outdated market share estimates for the mainframe disk market. Current estimates from Gartner Group, Inc., project 1997 market share for mainframe disk systems at 43% for IBM and 41% for EMC Corp.

The photograph of Ken Ficarra on page 77 of the April 14 issue should have been credited to Edward Santolone.

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CA aims OpenIngres at NT, Internet

► Seeks to revive database, address technology lag

By Craig Steinman

COMPUTER ASSOCIATES International, Inc. this week will launch an effort to revive its OpenIngres database by announcing a reduced-cost release for Windows NT, according to sources briefed on the plan.

Workgroup OpenIngres is the first part of a two-pronged CA strategy aimed at getting the database back on a more relevant technology footing with rival products.

The Islandia, N.Y. company will follow up this summer with a new version that includes tighter ties to the Internet and several features that Ingres users have been requesting for years (see chart).

Users and analysts gave CA credit for trying to breathe new

life into the database, which it bought in 1994. But they said finding new customers and putting a stop to raids by other database vendors won't be easy.

CA is showing signs of putting more marketing weight behind Ingres. "It may be too late for us," said Charlie Lancaster,

CA's sales of Unix and Windows NT databases and related development tools grew almost 18% last year, according to preliminary figures from International Data Group (IDC) in Framingham, Mass. But most of the growth appears to have come on the tools side, while database revenue has "basically been flat," said Dan Kusnetzky, an analyst at IDC.

CA **NOT TALKING** CA officials declined to comment on the upcoming announcements. Sources said Workgroup OpenIngres is aimed at Windows NT and Pentium-based Unix servers and will include all of the enter-

prise-level OpenIngres capabilities at a reduced price that starts at \$235 per port.

By contrast, Oracle and other vendors have stripped functionality out of their databases to create lower-cost workgroup versions targeted at NT users.

OpenIngres 5.0 is in beta testing and will initially support Windows NT and the Solaris operating system, with a mix of other Unix flavors following by end-year sources said.

Promised features such as

low-level data locking have been on the wish lists of Ingres users for years but kept getting put off from release to release, said Tom Blythe, a technical specialist at the American Mathematical Society in Providence, R.I.

"It's from CA a little while to get their feet under [the database], but at least they're moving forward," Blythe said. "Hopefully, they can find some new customers and keep it a viable product." □

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Promised features such as

RESCUE MISSION

Computer Associates plans the following announcements for OpenIngres

Product	Features	Availability
Workgroup OpenIngres	Low-priced version for Windows NT and Intel-based Unix servers	This week
OpenIngres 2.0	New release with row-level data locking, multiprocessor support and native Web server interfaces	This summer

price-level OpenIngres capabilities at a reduced price that starts at \$235 per port.

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Promised features such as

Tools aid client/server monitoring

By Patrick Dryden

MUCH-NEEDED TOOLS for monitoring the quality of client/server network service will debut at Network/Interop '97 next month in Las Vegas.

New and enhanced products being introduced this week address an issue for information systems managers. They must detect poor performance by networks, systems and applications before users notice that service has slowed or disappeared.

That has always been the unwritten agreement between IT departments and users. But organizations that recognize the business value of information technology are expecting defi-

nite service levels for access to internal resources.

"Service levels have drawn a lot of attention here recently, due to awareness of how pervasive and crucial our network has become," said Bob Napier, a network engineer at Lockheed Martin Corp. in Bethesda, Md.

But a staff of 20 that supports a 15,000-user network in Tennessee is "stretched so thin that we can't react as quickly as we'd like," Napier said.

Napier said he seeks help from performance monitoring and analysis tools in order to "be proactive and define service levels ourselves before they get forced on us."

IS managers used to just

throw bandwidth at problems to buy time, said Kathryn Winkler, senior consultant at The Registry, Inc. in Newton, Mass.

CAN'T KEEP UP

But usage is accelerating too fast, because of the growth in intranets and networked applications. "IS can't stay ahead of the curve, so they must manage requirements and expectations," Winkler said.

IS can't manage what it can't measure, so vendors try to deliver better performance-monitoring tools. And to make reports widely available, these tools allow broad access via a browser interface (see story at right).

Hewlett-Packard Co. leads the pack in addressing service-level management needs, according to analysts. It has focused both its OpenView tool division and field consulting and training forces on the task.

HP will expand its NetMetrics Reporter software to analyze performance information from diverse sources for the first time. From one screen, operators will be able to see when performance drops below defined thresholds for systems and applications, not just for networks.

To do that, Version 5.0 will gather data from other tools in the OpenView line. Also, HP will extract proprietary performance information from other

vendors' products, starting with routers and switches from Cisco Systems, Inc.

Future partners will include vendors of internetworking hardware, systems and applications, according to HP officials in Palo Alto, Calif.

But HP doesn't expect to ship NetMetrics Reporter 5.0 until October.

Avoiding the help desk

Many vendors are announcing new ways to track performance and recognize trouble before the help desk telephone rings.

Support staff and even end users can access those reports from a browser over the corporate intranet to keep an eye on service levels.

Start-Up System Management Arts, Inc. in White Plains, N.Y., this week will launch a next-generation event-correlation tool called InCharg.

The analysis software reduces the complex relationships among networked components to a simple mathematical model instead of just flurrying redundant alerts as existing products do.

Kaspia Systems, Inc. in Beaverton, Ore., will introduce a major overhaul next week to its Automated Network Monitoring system. The new Java-based version addresses problems with scalability and slow report generation. It now tracks device availability instead of just traffic flow to provide service-level reports.

Technically Elite, Inc. in San Jose, Calif., next week will introduce a network probe and analysis software that supports the new Remote Monitoring (Rmon) standard for tracking application performance and packets.

Fortiether 4000 watches Ethernet links operating at 10 or 100 megabits/sec, and reports to the new Demolition Rover console. The tools, expected to ship in July, include Rmon's extensions that measure application response time and network availability to help isolate performance problems.

NetScout Systems, Inc. in Chelmsford, Mass., will introduce the first probe capable of monitoring wide-area network traffic over T3 lines.

The Metasoft T3 WAN EnterpriseProbe will ship in June for \$15,000.—Patrick Dryden



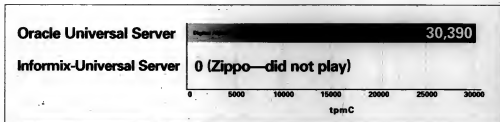
HP's NetMetrics Reporter will reveal performance experienced by end users from systems and applications, not just networks

Oracle vs Informix

Benchmark Leader vs Bench Warmer

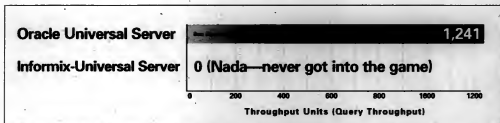
TPC-C Performance

The TPC-C benchmark is the industry standard test for measuring database On-Line Transaction Processing (OLTP) performance.



TPC-D Performance

The TPC-D is the industry standard benchmark for measuring query performance on large complex databases.



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People who work at (fiber)glass company shouldn't use paper

► Elimination of file cabinets saves \$30M

By Julia King

SIX MONTHS after moving into a new, high-tech, paper-free headquarters, Owens Corning is well on its way to saving \$30 million in annual operating costs.

By eliminating all file cabinets, the Toledo, Ohio-based fiberglass manufacturer has already knocked off nearly \$30 million from its office space costs. The cabinets are unnecessary because the company has implemented new systems and policies that make paper just about obsolete.

Here is how the savings are estimated: A four-drawer file cabinet takes up six square feet of real estate. At a rental cost of \$10 per square foot, and with 14,000 file cabinets worldwide, Owens Corning is banking on a savings of about \$30 million.

By conducting virtually all internal business electronically—by reducing a staff meeting to reviewing new product designs—Owens Corning also has eliminated 50% of its copiers, 50% of its printers and 60% of its fax machines. That has

saved millions more.

All policies, product information, memos, announcements and other news are now on an internal intranet instead of on paper.

Those communications are delivered over a vast fiber-optic network. Users access the network from identically configured PCs that run Microsoft Corp. business applications.

In addition to having Internet, intranet and electronic mail access, each user can send and receive electronic faxes. Many users also have desktop scanners that digitize paper-based correspondence. Those who don't have scanners can convert incoming paper at one of several scanners on each floor. All data storage and backup is handled by Xerox Corp., which runs all of Owens Corning's printing, document management and electronic storage under a multiyear outsourcing agreement.

"It's a plug-and-play building," said Mike Radcliff, chief information officer at the \$4 billion company. "All applications are available through the internal network, so you pretty much have global, mobile access to all systems and information," he said.

That includes when users are away from their desks. Group meetings, for example, are held in one of the building's 24 multimedia presentation rooms. Those are equipped with electronic "note boards" that electronically capture a presenter's written notes or diagrams. The notes can be distributed to attendees later via E-mail. Radcliff said standardization

What used to be ...

- A Rolodex
- A paper-based appointment book
- A paper-based product diagram

... is now

- An electronic contact database
- An online scheduler
- An electronic "soft board" presentation

has been key to the reductions. Equipping everyone with the same software makes access easier, because "we had to make it easier to find something electronically than [it was] to find it on paper," he said.

LOVE THAT ROLDEX

Not all users immediately embraced the new technologies, at least not without a certain amount of wariness. Gretchen Ellis, an information services administrator, said the hardest thing to give up was her Rolodex.

Carol Eberly, who heads up the company's Global Link intranet initiatives, said she couldn't imagine life without her appointment calendar.

"It was a true thing," Eberly said. "All I could think was, 'What if I came in and I couldn't get to my calendar [if the system crashed]?'"

But now, Eberly said, she can't remember the last time she sent or received anything on paper.

If the network goes down, which is a rarity, according to Owens Corning staffers, users

can work off-line until it comes back up. All data from network servers and users' personal drives is continuously backed up, so data loss is minimal in the event of an outage—usually it is no more than 30 to 40 minutes' worth of data, Eberly said.

The paper that remains at Owens Corning comes largely from outside. Customers still send letters and faxes that request product literature, for example. But those are forwarded electronically to the Xerox-run document center, which prints the materials and sends them to customers.

By year's end, Owens Corning is scheduled to go live on SAP AG's R/3 system, which will link to the Internet to accept incoming orders electronically.

For now, the challenge is educating users and selling the benefits of a paperless workplace to employees at other Owens Corning locations. Eberly's team will kick off that program next month.

"Paper-free is still a commitment," Eberly said. "We're not all the way there—yet." □

COMPUTERWORLD

For those and related links, point your browser at www.computerworld.com/links/guide/guide-links.html

The paperless office fact sheet: www.opticaldocs.com/facts.html

A paperless future: www.americanline.com/future.html

Trying the paperless office: www.benton.com/papers/paperprod.html

Electronic approval: another step toward a paperless office: www.owens.com/information-resources/in-library.html

SHORTS

Apple seeks state tax break

At the request of Apple Computer, Inc., California state Sen. John Vasconcelos (D-San Jose) introduced legislation that could give suffering computer firms refunds from state sales and usage taxes. The bill would apply only to computer makers that are losing money. Apple last week posted a \$308 million quarterly loss.

Microsoft earnings soar

Microsoft Corp.'s quarterly income rose 85% for the third quarter ended March 31, compared with the same period last year. The company said the increase was fueled by the sale of more than 8 million new licenses for Office 97. The Redmond, Wash.-based software giant reported a revenue increase of 45%, to \$1.21 billion for the quarter. Net income totaled \$1.04 billion.

'Avant a lawyer'

Six executives at Avant Corp. in Sunnyvale, Calif., have been charged with conspiracy and misappropriation of design secrets by the Santa Clara County, Calif., district attorney. The group is accused of stealing software code from Cadence Design Systems, Inc. in San Jose,

Calif., and building Avant's first products on that code. Both companies develop software for semiconductor chip designers. Cadence had filed a civil lawsuit against Avant charging copyright infringement, conspiracy and theft of trade secrets. Avant denied the charges. Avant executives named in the indictment include Gerald Hsu, chairman, director and CEO.

British Steel scraps IBM deal

British Steel PLC has abandoned plans for a \$520 million information technology outsourcing deal with IBM. British Steel, in London, said only that IBM "did not fit our commercial requirements," according to a company spokesman. An IBM spokeswoman said the two companies "were not able to come to a mutual agreement." She declined to comment further.

Shareholders sue Informix

Informix Software, Inc.'s disclosure that it would report a big first-quarter loss has prompted a shareholder class-action lawsuit. Law firms in San Francisco and Orlando, Fla., last week jointly filed a suit charging Informix executives with making false and misleading statements about the Menlo Park, Calif., company's

financial prospects. The lawsuit came on the heels of a Securities and Exchange Commission filing by Informix disclosing that about 25% of the \$208 million in software revenue it reported last year came from licenses that were still held by resellers at year's end.

VeriSign offers insurance

VeriSign, Inc. will offer a free data-protection insurance plan to users of its Digital ID software. The NetSure Protection plan, underwritten by U.S. Fidelity and Guaranty Co. in Baltimore, will provide protection against losses caused by the theft, disclosure, modification or corruption of a user's private key—one of the pieces of Mountain View, Calif.-based VeriSign's Digital ID authentication software. Users will receive a policy that gives them from \$1,000 to \$50,000 worth of protection, depending upon the type of Digital ID they have.

SHORT TAKES Data General Corp. posted a two-fold increase in quarterly profits compared with a year ago. Net income was \$13.8 million on \$59.3 million in revenue. ... Cabltron Systems, Inc. in Rochester, N.H., will announce plans this week to boost the performance analysis capabilities of its Spectrum network management platform.

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IBM firms up Internet strategy

By Mitch Wagner and Barb Cole-Gomolski
SAN FRANCISCO

FACED WITH THE PERCEPTION that its Internet strategy is unclear, IBM last week introduced development tools and servers and laid out a strategy for Inter-

net commerce. The company is positioning its Lotus Development Corp. Domino servers as a tool for collaboration and workflow management over the Internet.

For other forms of electronic commerce, IBM is offering its Encina transaction processors to handle large vol-

umes of Internet payments and queries, and connectors to its DB2 databases for moving large data stores into cyberspace.

The strategy should help IBM clarify what it can offer users, who are now confused about why they should deploy IBM for Internet connectivity — despite the company's strong technology offerings.

"I personally always thought that IBM had more pieces of the [Internet] pie than anybody," said IBM user Patrick Mc-

Namara, a systems administrator at EMI Records Inc. in New York. "They just haven't been that good at getting the point across."

Chief among the offerings announced last week are Lotus server products, designed for the low end of the commercial World Wide Web server user base.

Lotus Co. due this summer, is an entry-level Web server that will compete with offerings from Netscape Communications Corp., Microsoft Corp. and the public-domain Apache server.

The company also expects this summer to roll out Lotus Domino Mail, a server just for electronic mail, calendaring, scheduling and discussion groups.

"[IBM is] looking at some real serious back-end electronic-commerce products, not rinky-dink storefront products."

— Chris Stevens, Aberdeen Group

"It sounds like Lotus Go will be a stripped-down Web server, and I see a demand for that," said Lotus user Steve Haggerty, a senior manager at First & Young in Westlake Village, Calif.

Many companies buy Web servers and add application functionality by hand-coding scripts, whereas Notes and Domino provide the same functionality more gracefully, he said.

But the announcement is a bad idea, according to Gilad Ben-Yosef, a Notes consultant in Chicago.

"If they are just offering a stripped-down [Hypertext Transport Protocol] server, what sets them apart?" Ben-Yosef said. "If you fragment your products too much, you confuse the customers. They should focus on the core product [Domino] and enhance that."

"The whole problem is that Lotus has this really robust and mature product that is integrated with open standards, and by stripping big pieces of functionality out, they are getting rid of the advantage they have," he said.

ADVANTAGES

But other users said IBM has advantages over its competitors in connecting the enterprise to the Internet because of its mainframe heritage.

"They're looking at some real serious back-end electronic-commerce products, not rinky-dink storefront products," said Chris Stevens, an analyst at Aberdeen Group, Inc. in Boston.

IBM attracts users who are otherwise fearful of Internet security threats.

"When we surveyed people who use our site, we found out that security was a major concern for them. Our site deals with sensitive medical information, so that's not a surprise," said Ian Sutcliffe, president of Mediaconsult.com, a Boston-based site that offers medical information online.

"We asked them which computer vendor they had the most confidence in, and IBM came out on top," he said. □

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Sybase users offered help

By Sharon Gaudin

CYRANO, INC. plans next month to offer a migration program designed to assist Sybase, Inc. customers with their mandatory migration to SQL Server Version 11, Computerworld has learned.

The Cyrano System 11 Migration Plan includes two previously available automated testing tools, on-site training and a written methodology.

Sybase is halting the package as a way to ease the burden of the migration, which is affecting thousands of its customers. Sybase also has embraced other companies such as Astoria Tech Corp. and CAST Software, Inc., which will handle other parts of the migration issue.

TIME RUNNING OUT

The programs are aimed at Sybase users who are under the gun to upgrade from old releases before the firestorm, Calif.-based database maker pulls support for them by mid-1998. [See related story, page 47]. Newburyport, Mass.-based Cyrano will deliver its bundled program next month, said Deborah Green, director of marketing.

"We've used products like this previously, and they were greatly helpful," said Terence Light, manager of systems development at Wingham, Mass.-based United Grain Growers Ltd., an agribusiness that annually moves more than \$4 billion worth of grain. "It's a big job just to go through and identify

and streamline what the problems are."

Light, who stores inventory and market pricing information on Sybase SQL Servers at 200 grain elevators across Canada, said his developers already have the migration problem in check and won't need any tools. But he added that if they weren't so far along, buying tools would be on the top of his list.

Sybase alerted its customers in January that support for Version 4.9.2 would end by July of next year and that support for Version 10 would be cut off next January. Six-month extensions are available for large customers unable to make the change in time. Those two releases slipped prior to Version 11, which Sybase released in late 1995.

Sybase estimates show that SQL Servers, across all versions, has about 4,500 directly supported customer sites. Specific numbers weren't available, but Sandra McFarland, senior manager of migration programs at Sybase, estimated that about 70% of those customers have already migrated.

For those customers that haven't, Cyrano's package, which has a list price of \$25,000, was designed to help them find the little surprise problems that other users had already complained about at a recent Sybase user group meeting. After the glitches are found, the users' database analysts make the fixes. □

Oracle app users share migration tips

► Start early, go slow, check custom apps

By Randy Weston
NASHVILLE

MIGRATION was the hot topic at last week's Oracle Applications User Group conference held in light of Oracle Corp.'s plan to drop support by the end of next year for software that isn't year 2000-compliant.

Oracle's decision means that users of its application package who don't have the latest version, 10.7, must upgrade. Users said moving from a

by version of the software is relatively simple, but moving from a more current point version can be difficult.

"Going from [Release] 9 to [Release] 10 is a significant amount of work," said Cynthia Sutherland, information systems program manager at Sequent Computer Systems, Inc. "You must test it as a new implementation — it's that complicated."

LENGHTY PROCESS

A migration could take as long as a year or more because of the following factors:

- Users will need to upgrade the database because Release 10 needs twice the database capacity as Release 9.
- Users also will need to train end users on new functionality, add hardware, test and possibly rewrite custom applications and redesign tables throughout the manufacturing module.

Users may be tempted to rush an implementation to beat the deadline. But Oracle officials

Suggested migration schedule for Oracle application users

Time	Event
Month 1 to 2	• New product training • Project planning • First test upgrade
Month 3	• Hardware upgrade • Unit test • Data cleanup • Second test upgrade
Month 4 to 5	• System customization • Third test upgrade
Month 6 to 8	• Business process re-engineering (BPR) identified • System customization • More test upgrades
Month 9 to 10	• Stress test • Training • Dress rehearsal and delivered • BPR starts
Month 11	• Dress rehearsal upgrade • Production upgrade • Final BPR

and users advised against that.

Sutherland said her company migrated too hastily from Version 8.4 to 9.3. Problems arose because her team "blindly ported all customized applications," which made them miss opportunities to evaluate whether much of the old customization was still needed and to add more customization.

Thoroughly testing the upgrade, especially custom applications, is key, said Debi Schradler White, principal programmer/analyst at In Focus Systems, Inc., a maker of multimedia projection devices in Wilsonville, Ore.

She stressed that testing is an important piece of the upgrade. And she also recommended combining custom applications to make sure

only what is needed is moved to the new system and to evaluate which new custom functions should be built.

Users also must ready the custom applications for the year 2000.

UPGRADE FIXES

Many users wrote customized applications containing two-digit year fields. White said. When they upgrade to the later version, they need to rewrite those pieces to handle four-digit fields.

Richard Cross, an implementation consultant at New Alliance Corp. in Greenwood Village, Colo., said custom applications usually eat up a lot of time. He also said training issues need to be addressed early. □

Xerox punches up digital copier line

By Barb Cole-Gomelski

HOPING TO MUSCLE IN on the turf of network printing leader Hewlett-Packard Co., Xerox Corp. last week introduced a line of copiers that can be upgraded to fax, scan and print documents.

The new Xerox copiers can be connected to PCs using Xerox software that will let users manage document jobs across corporate networks. Down the road, the Stamford, Conn.-based company plans to offer a World Wide Web-enabled version of

the software in a bid to extend its reach to intranets and the Internet. HP's office printers don't have faxing and copying capabilities.

"We expect that [this bundled approach] will be cheaper than buying these devices individually."

— Ron Rakestraw, GSA

But the add-on that will let the Xerox copier print isn't available yet, and Xerox hasn't an-

nounced pricing.

The four new Document Center Digital Copiers are expected to appeal to companies that wish to replace old-style copiers with digital systems and add fax, printing and scanning capabilities in a piecemeal fashion as their older fax machines, scanners and printers break down. The line will

also ensure that companies deal with one supplier for maintenance of these devices.

"We expect that [this bundled approach] will be cheaper than buying these devices individually," said Ron Rakestraw, information technology project manager at the U.S. government's General Services Administration (GSA) in Atlanta.

One of the features of the new copier line — such as the ability to print and scan the fronts and backs of documents — will help the government agency meet its paper-reduction goals, Rakestraw said.

Other beta testers said the new machines make much higher-quality copies than today's copiers.

Xerox already offers digital

copiers, but they are costly machines largely aimed at print shops. The new units — which start at around \$9,000 — are about 10% more expensive than old-style copiers. Printing, faxing and scanning may be added through modules that will be sold separately and are expected this fall.

John Dunkle, president of Workgroup Strategic Services, Inc., a market research firm in Portsmouth, N.H., said he expects the modules' pricing to be on par with high-end office machines. The fax module will probably cost about as much as a high-quality, stand-alone fax machine, Dunkle said. □

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More mobile users shoulder NT laptops

By Mindy Blodgett

DON'T TELL Fred Winograd that Windows NT wasn't made for laptop computers.

For the chief information officer at Montgomery Securities, Inc. in San Francisco, the decision to deploy Windows NT Workstation 4.0 on 350 Digital Equipment Corp. laptops made perfect sense. The firm was switching from Apple Computer, Inc. Macintosh and PowerBooks and rebuilding its desktops from scratch, Winograd said.

"We had decided to go with Windows NT on servers and desktops, and we wanted to standardize," he said. "It is hard enough to support a mobile user; if I

had to put together a staff with both Windows 95 and NT experience, it would have made life more difficult."

NT HAS THE ROAD

Winograd isn't alone. Despite the fact that Microsoft Corp.'s Windows NT operating system lacks power management and modem support features—and making it a poor laptop operating system—laptop vendors said a rapidly increasing number of users are taking NT on the road anyhow.

For example, Digital officials

estimate that as many as 15% of the company's laptop customers run NT, and IBM PC Co. sets the number of its corporate laptop clients that run NT at 20%. Officials at both companies say the numbers are growing.

According to International Data Corp. in Framingham, Mass., 0.7% of the laptops shipped last year ran NT. That percentage is expected to jump to 3.3% this year and to 10.8% by 1999.

The reason is standardization: users who move to NT on the desktop figure they might as well run NT on their laptops. Also driving the mobile march to NT is the allure of the security provisions built in to NT but lacking in Windows 95. And many users who want NT on laptops aren't willing to wait until the mid-1990s release of 95, which promises mobile support such as fast boot loading.

"Standardization and the more secure operating system were what we liked about NT on laptops," said Steve Sommer, vice president of information systems management at New York law firm Hughes, Hubbard and Reed.

But providing NT laptops isn't easy, according to users, analysts and industry observers.

Several laptop vendors, in-

cluding Digital, IBM PC Co., Compaq Computer Corp., NEC Technologies, Inc., Dell Computer Corp. and Toshiba America Information Systems, Inc., offer NT preloaded on laptops.

MISSING STANDARDS

To do so, the vendors have had to create proprietary extensions and special drivers to make up for NT's missing mobile features, such as the ability to gauge battery life. The lack of standard drivers particularly troubles industry analysts and some users.

Portables go ultralight and superheavy

CONTINUED FROM COVER 1

electronic mail and word processing tasks.

Slated to hit the market around Comdex/Fall '97, many of these machines will run Microsoft Corp.'s Windows CE operating system. Costing \$1,000 to \$6,500, they fall into a market niche somewhere between laptop and handheld PCs.

On the high end are desktop replacements that weigh up to

"While there are some patches out there, they are all proprietary," said Martin Morrison, an analyst at Gartner Group, Inc. in Stamford, Conn. He said that if the driver breaks down, "you are back to square one."

In addition to the hardware vendors, some peripheral developers have stepped into the breach. For instance, SystemSoft Corp. has developed NT versions of its CardWizard and PowerProfiles PC card products. Phoenix Technologies Ltd. has released a similar product.

But Ken Dulaney, an analyst

at Gartner, said the consultancy advises users to stay away from the current NT laptops.

"All the software available for 95 is not available for NT. Some shops think that standardizing will cut costs of ownership, but the increased support calls you get with NT takes that away," he said. Dulaney said that only users who want security should consider running NT on laptops.

"From everything we have read and heard, Win 95 is better for laptop users," said Kevin Daphy, manager of workgroup applications at Millipore, Inc. in Bedford, Mass. "The support headaches [for Windows NT] would be higher. I just don't see the benefits." □



Win 95 is good for laptops; support for Win NT may be harder



More Win 95 laptops. Some mobile users want more than the E-mail and writing abilities that ultralight portables offer

Storage management software out

By Matt Hawn

LEGATO SYSTEMS, Inc. last week announced six products designed to help administrators of even the largest distributed server networks store data and manage storage devices.

The Palo Alto, Calif., vendor said it will ship the products this year to implement its Global Enterprise Management of Storage (GEMS) strategy announced last fall. The products include online backup utilities and a Java-based console for managing enterprise storage devices.

Northern States Power Co. in Minneapolis plans to purchase at least two of the software products in the coming months to cut data backup time in half,

among other reasons, said Burt Loveland, an on-site consultant at Northern States Power.

"We're interested in virtually everything they announced," Loveland said.

For example, Legato claims that an eight-hour daily backup job can be cut to four hours with GEMS 1.0 software, he said.

GEMS 1.0 will be available next month for \$5,995.

Also, Loveland said he wants to obtain NetWorker 5.0 for Windows NT, IBM's AIX, Hewlett-Packard Co.'s HP-UX and Sun Microsystems, Inc.'s Solaris. NetWorker is software that connects multiple storage platforms with multiple storage devices. It will be available to the fourth quarter. □

16 pounds and boast 15-in. screens, which make them more like "luggables" than portables, industry observers said. These \$6,000 beasts will target power users who run hefty graphical applications.

Compared with today's desktop replacements, these high-end portables will offer faster processors — the Intel Corp. Pentium 300-MHz mobile chip is expected this year — screens almost equal to those on standard PCs and much bigger hard drives, according to analysts.

Mobile users are finding more handsets on market.

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"With the ultra-subnotebook market, I think the vendors are finally catching on to what users are looking for," said Tim Bagarim, an analyst at Creative Systems, Inc. in San Jose, Calif.

"These are almost mobile network computers [that function as E-mail and web devices, using the Internet for access]."

User Mike Radigan, a program manager at Xerox Corp. in Rochester, N.Y., said the thinner client is the way to go. "At a cheap enough cost...with lighter weight and more functionality...it could be a monster development for mobile," he said.

"The lightness and battery life sound very appealing," said Jim Smiley, a systems consultant at Sun Oil Co. Refining Market in Philadelphia.

And Andrew Seybold, editor of "Outlook on Communication and Computing," a newsletter in Boulder Creek, Calif., said, "These will allow people to write from the road and get their E-mail — the two things users want most of all. I call them E-mail machines, and I have been looking for them for a long time."

The high-end laptops, which are expected to ship between June and year's end with 15- to 15-in. screens, will appeal mostly to engineers and those who need heavy-duty graphical use in vertical markets on the road," Benjamin said.

But Frank Delacy, information systems manager at Polaroid Corp. in Waltham, Mass., expressed interest. "Some people do heavy-duty imaging applications, and they would love to be more mobile. They might like these luggables," he said.

Laptop vendors expected to release ultra-ultralight laptops this year include IBM PC Co., Toshiba America Information Systems, Inc. and NEC Technologies, Inc. (see story below).

Analysis said IBM PC plans in the next two months to ship laptop replacement laptops that feature a 5-in. screen and 160-MHz hard drive. They will cost between \$6,000 and \$6,500. □

Crossing the ocean

Two of the new laptops will be versions of products already on the market in Japan. These include the following:

• NEC Technologies in Itasca, Ill., will release an ultra-ultralight portable at year's end, according to sources. Code-named Livingston, the device will be similar to Mobile Giga, a DOS-based handheld PC with a built-in 14.6K Hz/sec. modem and 16.5mm keyboard that NEC has been selling in Japan. Livingston will probably support the next version of Microsoft's Windows CE operating system, due this fall. NEC also plans to release an ultraportable notebook this summer with a 150- or 166-MHz Pentium MMX processor and a 15.1-in. screen.

• Toshiba America in Irvine, Calif., is due to announce Livingston, a mini-notebook that runs Windows 95. The notebook, which is also sold in Japan, weighs less than a pound and has a 6.1-in. color screen and a 16.1-MHz processor. — Mindy Blodgett

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Proxy servers gain user appeal

► Microsoft, Netscape battle for top market spot

By Laura DiDie

CORPORATE INTERNET USERS increasingly are turning to proxy servers to ease bandwidth demands, reduce leased-line costs and improve security.

The two leaders in this market are Microsoft Corp. and Netscape Communications Corp. IBM and Novell, Inc. are developing products that will ship in the next six to nine months.

Bob Sakakeny, an analyst at Aberdeen Group, Inc. in Boston, said the demand for proxy servers has soared in the past eight months, as companies have embraced the Internet.

"This is yet another market segment we are going head-to-head with Net-

scape," Sakakeny said.

Microsoft and Netscape proxy servers—each priced at \$1,000—act as secure gateways that enable businesses to deploy a single dedicated machine for Internet access by dozens or hundreds of users. The servers also provide intelligent caching for faster data access and minimize bandwidth overhead during peak usage.

The Netscape and Microsoft proxy servers have similar functionality. The main differences to date: Netscape's Proxy Server has been shipping for two years and offers greater scalability running on high-end Unix servers such as Sun Microsystems, Inc.'s Solaris.

Microsoft's Proxy Server provides better integration with

Windows desktops and applications. And Microsoft's Proxy Server supports a wider range of network connections to online services, Internet and news groups.

Proxy servers have limitations. Unlike more expensive stand-alone firewalls, which range in price from \$5,000 to \$50,000, proxy servers don't deliver sophisticated event statistics, reports, alarms and audit tracking.

Eric Senf, engineer at Krause Publications, Inc., a publisher of collector and trade publications in Iola, Wis., picked Microsoft's Proxy Server over Netscape's offering.

He said it let his firm "pray all types of network connections," such as User Datagram Protocol for real audio, live videoconferencing and access to online services such as America Online and CompuServe.

"Netscape's Proxy Server works well, but it only lets you establish basic [file transfer protocol], [Hypertext Transfer Pro-



MANAGING EDITOR
Company has reduced support and administration costs by up to 50%

toocol and Gopher connections," Senf said.

SYSTEM SAVINGS

The Proxy Server's close integration with Windows NT Server has allowed Harrah's Entertainment, Inc. in Reno, Nev., to reduce support and administration costs by up to 50% for its 22,000 users at 17 gaming sites, said Robert Williams, the company's systems manager.

"Microsoft's Proxy Server's caching capability gives our end users a 15% gain in access time over the existing 156K bps/sec. link without requiring an upgrade to a T1 line," he said.

"You can't put a dollar value on integration," agreed Paul El-

swick, a technical consultant at the Lee County School System in Virginia, which has used Microsoft's Proxy Server since the beta shipped last June. It lets the school centrally manage Internet access for 4,300 students and 340 teachers in 11 K-12 through-12 schools with just two network administrators.

"And it enables us to cut our monthly bandwidth costs from \$50,000 to \$5,000," Elwick said.

Microsoft's Proxy Server also features a filtering capability that lets the school system block student access to inappropriate or pornographic World Wide Web sites.

Netscape's Proxy Server also has plenty of proponents. Ed Glasman, director of technology strategy at Pfizer, Inc. in New York, found Netscape's Proxy Server was more mature and scalable than Microsoft's.

"It's not a healthy thing to bet your business on one software. Also, we use the Netscape Proxy Server running on a Sun Solaris server to cache yG to 100 bytes of data per day. We didn't find Microsoft's Proxy Server met our capacity requirements," Glasman said. □

Scalability concerns

CONTINUED FROM COVER

following:

►The forthcoming 64-bit versions of Windows NT Server, which will be based on Digital Equipment Corp.'s Alpha processor and Intel Corp.'s Merced chip. The support for NT on the Alpha processor is due in the middle of next year, about the same time that Windows NT 5.0 is to ship. There is no scheduled shipping date for an Intel Merced version of Windows NT Server. The 64-bit architecture is able to support performance-boosting features such as very large memories and large file sizes.

►The upcoming eight-way Wolfpack clustering and 16-way symmetrical multiprocessing proxy software for Windows NT, due in 1998 or 1999.

Some signposts, although not a complete road map, to Microsoft's publicly stated plans to meld Windows 95 and Windows NT into one operating system kernel, according to sources close to the company.

It is too early to speculate on the exact packaging of NT Server 5.0 or beyond, said Mike Nash, Microsoft's director of marketing for Windows NT

Server.

"We will support 64-bit addressing on both Digital's Alpha and Intel's Merced. We will deliver 64-bit Alpha addressing in the Windows NT 5.0 time frame and will deliver our exact release schedule for Merced when that chip gets delivered," he said.

Clusters distribute processing among multiple servers. That lets businesses create highly scalable, fault-tolerant and more easily managed networks with no single point of failure.

TOP GUNS

Many of the top Unix vendors, including Digital, Sun Microsystems, Inc. and Silicon Graphics, Inc. (SGI), already ship products that use a 64-bit architecture.

Sun and SGI recently incorporated interconnect technology from supercomputer vendor Cray Research, Inc. into their Unix servers.

The interconnect technology lets their Unix servers scale efficiently beyond current levels. Sun's recently announced Ultra-Enterprise 1000 scales to 64 processors from a previous high of 30.

Windows NT's inability to effectively use more than four processors has become a sticking point because Unix servers can comfortably support up to 64 processors without suffering a 30% to 60% performance hit.

"Worse yet, Windows NT 4.0 has no directory scalability because there is no Active Directory," Kastner said.

Already next year, Active Directory is due in the middle of next year, according to Microsoft officials.

Kurt Guerrero, a network administrator of 61 Windows NT servers at Northern Trust Co. in Chicago, said getting Wolfpack clustering is more crucial for the bank.

"I hope this scalability day gives us some concrete product road maps and product ship dates. We need Wolfpack now," Guerrero said.

Ben Neil MacDonald, an analyst at Gartner Group, Inc., said it will take Microsoft many years to close the scalability gap between Windows NT Server and Unix servers.

"Let's face it," MacDonald said. "We won't see the second and most important phase of Wolfpack—clustering among eight processors and beyond—until late 1998 or 1999. That doesn't solve users' current scalability issues." □

Check Point makes firewall security's Grand Central

By Sharon Machlis

CHECK POINT Software Technologies Ltd. today will unveil details of an alliance aimed at making a wide range of security products operate together with its FireWall-1 software.

The idea is to have everything from virus-scanning to intrusion-detection software work together at the firewall, which is the access control point where companies protect an internal network from the outside world.

Policies for all those tools—such as which incoming files to scan and what constitutes suspicious activity—could then be set at the firewall's single administrative console. The data logs from various security software also could be consolidated.

CENTRAL POINT

"If it works, it will be great," said Richard Perleto, corporate IT manager at VLS Technology, Inc. in San Jose, Calif. "It's something that's been needed. ... There's no centralized method [now] of managing all the data."

Alliance partners include switching firms such as 3Com

Corp., Bay Networks, Inc. and Xylan Corp.; antivirus vendors such as Symantec Software, Dr. Solomon's Software, McAfee Associates, Inc. and Symantec Corp.; and intrusion detection vendors like Tripwire, Inc. and Internet Security Systems.

The group also includes authentication vendors such as Assent Technologies, Inc., Secure Computing Corp. and Security Dynamics, Inc. and encryption specialist RSA Data Security, Inc.

The initiative, called Open Platform for Secure Enterprise Connectivity, features application programming interfaces and a scripting language to help developers integrate their products with Check Point's.

With an estimated 44% share of the firewall market and strong marketing, Check Point has the clout to draw in major vendors across the security industry, said Mario Rossmovich, an analyst at Meta Group, Inc. in Stamford, Conn.

Check Point, in Lexington, Mass., will offer testing and certification for plug-and-play compatibility with FireWall-1. □

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Oracle user group show tries to go it alone

► Focus is on technical education, not products

By Craig Steinman

ORACLE CORP.'s database user group next week will try to put on a better conference than the ones Oracle has started to run itself.

But officials at the Chicago-based International Oracle Users Group-America (IOUG-A) acknowledge the group is fighting against the proliferation of Oracle-controlled conferences.

Attendance at the IOUG-A's event in Dallas is expected to be about one-third of what it was at the last gathering in the fall of 1995, when Oracle and the user group still worked together on a single annual conference.

The IOUG-A canceled last year's conference after the two sides settled a nasty dispute by agreeing to run separate U.S. shows. Oracle would produce its own OpenWorld in the fall, and the user group would switch its show to the spring.

BY THE NUMBERS

"There's still a lot of confusion among the user community about the differences between us and OpenWorld," said Michael Abbey, an IOUG-A vice president who works as a database consultant in Ottawa. Holding the show in the spring after 14 years of fall conferences is also "a big change," he added.

Oracle will exhibit and give keynote speeches and presentations in Dallas, "but we haven't had a huge amount of dialogue with them over this conference," Abbey said. The IOUG-A wants to focus heavily on technical education "rather than new products and hype," he said.

Hugh Allan, manager of information technology at Dunlop Tire Co. in Amherst, N.Y., said he would rather see that kind of conference, as opposed to one in which Oracle is "putting on a major marketing blitz." But he said Dunlop isn't sending anyone to Dallas.

"I want to see how the first conference goes without Oracle's involvement before I'm willing to invest in it," Allan said. "It was hard to justify the cost of go-

ing this time."

Bob Cook, manager of database administration at the American Hospital Association in Chicago, also isn't heading for Dallas. The hospital association

put most of its education money into direct Oracle training this year, and the advent of separate conferences is confusing, Cook said.

"I don't have a feel for which one is better, and I definitely don't have the money to attend both," Cook said. "I

kind of liked it the way it was before."

Whether the IOUG-A can profit from the Dallas conference remains to be seen, Abbey said. "It depends on how much walk-in business we get."

Oracle isn't expected to announce any major new products at the IOUG-A conference, although the executive in charge of developing the upcoming Oracle database is due to give a "technology update" keynote speech. □

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Squabbling agencies endanger year 2000 work

By Patrick Thibodeau
COLORADO SPRINGS

THE TECHNICAL FIX for the year 2000 problem isn't what bothers state technology officials. It's getting squabbling state agencies and politicians to agree on a plan.

In that light, Michael M. Benzen has made it to the top of information technology's equivalent of Pikes Peak. Or so it seemed to those attending the National Association of State Information Resource Executives (NASIRE) conference held here earlier this month at the foot of the Rocky Mountains.

As Missouri's chief information officer, Benzen has persuaded various state departments to work together on the state's \$57 million year 2000-compliance effort. "It doesn't make sense for everybody to go to the slaughterhouse individually," he said.

Without a unified approach, costs are

likely to rise, political support will be tenuous and the project will be unmanageable as agencies veer off in different directions, officials at the conference said.

Benzen said coordinating the task among state agencies paid off for his group. The governor included the money in his budget, and the state House of Representatives approved it. If the state Senate acts favorably in several weeks, as expected, Benzen will have scaled his year 2000 summit.

PRESSING PROBLEM

Most states aren't that far along in addressing the year 2000 problem, said Curt Pederson, the CIO for the state of Oregon in Salem.

With fewer than 1,000 days before the year 2000, the so-called date-change bug has become a pressing concern for NASIRE members.

"What we're talking about here is a managed catastrophe," said NASIRE President Carolyn Purcell, executive director of the Texas Department of Information Resources in Austin.

Several state officials said getting agencies and elected officials to agree on the project methodology — and then fully executing each phase along the way — may be more important than the selection of software tools.

THE TOP 40

A key part of New York state's coordination effort was to create a list of the top 40 programs that must be fixed, said Cameron Thomas, director of the state's Task Force on Information Resource Management in Albany.

But reaching agreement among state officials wasn't simple, Thomas said. "We had one individual who was absolutely insistent that her deer management program should take greater priority over the bridge management program," she said.

Although New York budgeted \$50 million for year 2000 compliance, "we don't think it's anywhere near what we will need," Thomas said.

And year 2000 efforts in New York still haven't won support from legislators, Thomas said. □

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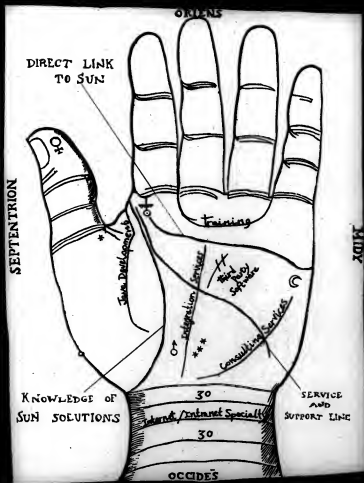
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A 1997 report from the U.S. Department of Health and Human Services report will show:

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- 32% of the states have completed a year 2000 assessment

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Companies turn to colleges for IS recruits

► Another tactic is to retrain current employees

By Julia King

U.S. COMPANIES are scouring college campuses and recycling their own employees to meet the hiring demands of IS

departments desperate for technical workers.

Corporate America plans to significantly boost information systems hiring in the next two to three months, a new

survey found, and will rely more heavily than ever on college recruits.

Another source of talent is in-house training programs.

Increasingly, large firms are reskilling mainframe and other technical specialists, then redeploying them to work on

client/server and Internet-related projects.

"We've done specialized training for very hot market skills, such as Oracle database administration, Unix systems administration and project management. That way, we can [redeploy] our own employees rather than rely on the marketplace," said Melody O'Brien, human resources director for IS at US West, Inc. in Denver.

College-level hiring at US West is up a whopping 100% compared with a year or two ago, O'Brien said. US West has about 150 IS job openings, she said.

Overall, U.S. companies plan to increase IS hiring by an average 24% during the second quarter, according to a survey of 1,400 chief information officers conducted by Robert Half International, Inc., a large IS recruiting firm in Menlo Park, Calif.

In certain regions and industries, hiring will be even stronger, according to the survey. IS managers in the real estate, finance and insurance sectors, for example, project a 32% increase in hiring.

Meanwhile, experienced IS professionals available for hire remain few and far between.

Thomson Financial Services, Inc. in Boston is working around the shortage by "hiring more junior people and letting them grow into key IS roles," said Bob Quinn, manager of employment.

That is done by hiring junior IS staffers several months before the scheduled start of a project. In the interim, the staffers are mentored by more experienced software engineers and developers.

Thomson has about 170 IS job openings, primarily for software developers with Unix, Windows, C++ and object-oriented skills. Oracle database administrators and Unix system administrators are also needed.

"We're hiring people that fit the profile we're looking for, whether we have a defined [job] requisition or not," Quinn said. "We're trying to build bench strength, be ahead of the curve and have people in before there's a crisis situation." □

Companies are expanding their talent resources and contracting with outside technical resources to meet their needs. Find out how to get the most out of your IT investment.

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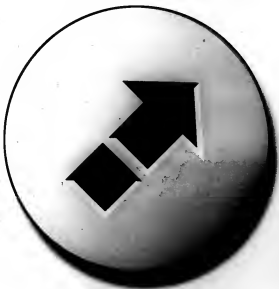
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to Networks	to Windows NT
to OS/2	to Windows
to Unix	to NetWare
to App Development	to Web
to Networking Products	to Web
to Internet Products	to Web
- Which of the following products do you buy, specify, recommend or approve the purchase of?** (Check all that apply.)

to J Internet software
to J Internet hardware
to J Web authoring
development tools
- Do you use the Internet?**

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Snafus plague IBM/county deal

► *Outage exploited in legal battle over outsourcing contract*

By Thomas Hoffman

THREE DAYS of computer downtime at a local community college is just the kind of ammunition that opponents of a 3-month-old, \$102 million outsourcing contract plan to use in their legal battles to stop the politically thorny deal.

In January, County Executive Andrew O'Rourke hired IBM to take over the bulk of information systems operations in New York's Westchester County under a 10-year contract [CW Jan. 27]. That same month, a New York State Supreme Court judge ruled that the contract was illegal, because only the county's board of legislators had the authority to allocate funds for the contract.

The county has since been granted a stay by the courts to allow IBM to continue running its 15 operations until a decision on the appeal has been reached.

The latest salvo in the ongoing battle is a memo sent by



Mark Gessoff, director of information systems at Westchester Community College (WCC) in Valhalla, N.Y., complaining that WCC is "experiencing enor-

mous frustration" with the county's outsourced services.

Those frustrations include WCC's three-day outage in late March, which was caused in

part by IBM's inability to communicate domain name server changes to the college when those changes were made.

Following the computer disruptions, WCC plans to deduct \$15,000 per day "or part thereof" from its services billings, wrote Gessoff, who couldn't be reached for comment.

Gessoff also wrote that he is upset with IBM's plans to move data center equipment in early May when summer registration and processing of grades for the spring semester begin. Gessoff wrote that IBM employees haven't "been showing any visible effort to familiarize themselves with our processes" to determine where to relocate the equipment.

An IBM spokesman deferred all comments to the county. General Services Commissioner Susan Egginton said the county is "continuing to discuss" the contract's relocation date with Gessoff. "We're still committed to [starting the relocation on] April 30," Egginton said.

WCC's problems are fueling opponents' efforts to get the courts to rescind the outsourcing deal.

IBM "didn't do good due diligence" by familiarizing itself with the county's business requirements before taking over 15 operations in January, said Luigi Martino, a 23-year systems analyst for the county and one of 92 Civil Service Employee Association members suing the county to get their jobs back.

Martino said Systems and Computer Technology Corp., a Malvern, Pa.-based vendor that was a finalist for the outsourcing deal, "brought in an army of people and asked lots of questions about our operations. IBM didn't, and it's showing now."

"It's illegal. This is outrageous. I'm furious over this," said Tom Abinanti, a county board member who opposes the deal. Abinanti said the outsourcing deal "was not a good deal for taxpayers" because the county "is not getting the performance we're paying for." □

DEMAND-CHAIN MANAGEMENT

Tools help forge link between suppliers, users

By Randy Weston

management software.

INDUSTRI-MATHEMATIK International Corp. (IMI) is modernizing its demand-chain management software package to make it easier to customize and integrate with other enterprise-wide software.

The Tarrytown, N.Y.-based software maker last week debuted Version 5 of its System ESS demand-chain planning software. The software manages customer orders, service, distribution, customer inventory replenishment, pricing and promotions.

The addition of an object-oriented architecture to IMI's current offering is important because it will let users more easily customize the system.

It also has a new gateway that includes application programming interfaces (API) and object request brokers that meet Open Application Group standards.

The standard APIs and object request brokers let users easily bolt System ESS to enterprise systems such as Oracle Corp. applications or SAP AG's R/3, as well as niche systems such as Manugistics, Inc.'s supply-chain

management software. IMI is one of a handful of software vendors carving a niche in the demand-chain planning market. Among the 150 users of its software are Black & Decker Corp., British Airways and Nestlé, British and Campbell Soup Co.

LISTENING TO USERS

IMI and other software vendors are now meeting users' demands for integrated software packages that tie the entire enterprise together—from managing suppliers to customers, according to Dennis Byron, an analyst at International Data Corp. in Framingham, Mass.

Skyway Freight Systems, Inc., a transportation service in Walnut Creek, Calif., plans to use IMI's order management software as part of a larger system to manage its customers' supply chains.

"Our customers are demanding it," said Chris Imai, marketing manager at IMI.

The general release of System ESS Version 5 is slated for May 24. Pricing starts at \$600,000 and varies depending on customer configuration needs and transaction load. □

Help desk software targets Win NT

► *Distributed server can cut call volume*

By Kim Girard

WITH AN EYE on the slow but growing migration to Windows NT, Remedy Corp. is positioning its help desk line so companies can tackle NT support problems at any location.

Driving Remedy's interest is the likelihood that within two to three years, three quarters of Remedy's new sales will be made to NT users, said Jack Gold, an analyst at Meta Group, Inc. in Stamford, Conn. Larger corporations are expected to use Unix alongside NT, and Remedy will be committed to both, he said.

With that in mind, Mountain View, Calif.-based Remedy last week unveiled a help desk product line for Windows NT. The products include a distributed server that can handle multiple applications at different locations and a gateway called AR-Web that works with the server to turn a user's World Wide Web browser into a client. With a gateway, users can tap in to the

help desk system using the Web. Remedy is also tying Microsoft Corp.'s Exchange to the help desk with a mail server.

The distributed server replicates information from a central server across geographically dispersed help desks and can route calls according to time of day and the expertise level of employees at a particular location.

A distributed server can curb call volume by 10% to 15%, according to Keith Bigelow, product manager at Remedy. The servers let companies pull together information from multiple servers and more quickly respond to changes, said Hugh Bishop, an analyst at Aberdeen Group, Inc. in Boston.

Remedy's NT distributed

server option—which costs \$15,000 minus the cost of per-seat licenses—is a less-expensive alternative to high-end solutions offered by Clarify, Inc. in San Jose, Calif., Vanitex Corp. in Santa Clara, Calif., and Scopus Technology Corp. in Emeryville, Calif., Gold said. Those can cost up to \$500,000, he said.

The National Institutes of Health (NIH) in Bethesda, Md., is testing Remedy's AR-Web to link its users to the NIH's Remedy help desk system. NIH moved from Unix to NT this month and has 15,000 users who previously were limited to calling or using electronic mail for help desk assistance. Now, they can also use their browser. □

Remedy products for Windows NT-based help desks

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Distributed server option	Now	\$15,000
ARWeb for Windows NT	Second quarter	\$12,000
Remedy Mail Server for Microsoft Exchange	Now	No charge

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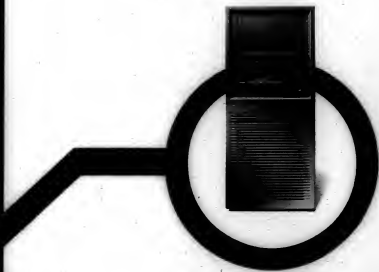
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FIRST-QUARTER FINANCIALS

3Com unveils reorganization

► U.S. Robotics deal prompts split into three units

By Bob Wallace

3COM CORP. last week announced a major reorganization in anticipation of its summer merger with U.S. Robotics Corp. It also said a key executive is leaving.

Robert Finocchio, president of 3Com's switching unit, said he will step down after May 31 for personal reasons.

Last August, 3Com split into two units: 3Com Systems, which handles switches, hubs and routers; and 3Com Interface Products, which makes adapter cards and other products.

Under the latest reorganization, which will take effect when the merger goes through, 3Com will have three divisions: enterprise systems for hubs, switch-



3Com's Robert Finocchio. The company's switching unit president will step down.

es, routers and network management; carrier systems for carrier and service provider equipment; and client access for LAN and WAN access devices.

One analyst said Finocchio's departure will be felt. "This is a big loss for 3Com, as Bob has

done a phenomenal job for the company, especially in integrating the many companies 3Com has acquired over the last several years. He'll be very difficult to replace," said Nick Lippin, president of Strategic Network Consulting, Inc. in Rockland, Mass. Finocchio joined 3Com in 1988.

But Finocchio's departure is just one challenge facing the Santa Clara, Calif., vendor, whose financial performance has disappointed analysts.

FINANCES IN DOWNSWING

"Although it seems everyone but Cisco [Systems, Inc.] and Ascend [Communications, Inc.] has been ravaged, 3Com's stock has plummeted from about \$78 a share on Dec. 10 to almost \$13" last Tuesday, said Paul Weinstein, an analyst at PaineWebber, Inc. in San Francisco. "They completely missed their

last quarter," he said.

3Com has tried to boost its switch sales by slashing prices on its low-end Ethernet switches, a move that Cisco recently followed and will likely be copied by other rivals, Weinstein said.

And 3Com has lost its lead in data-center switching to Cisco. That's partly because Cisco delivered switching add-ons faster than 3Com, said Eric Hindin, an analyst at The Yankee Group, a Boston consulting and research firm.

3Com hopes that near-term plans for Gigabit Ethernet add-on, new switches and enhancements will boost its market share in the data-center switch market. □

Internet-working users say vendor technology road maps are of limited use. Page 51

* Revenue declines

Apple misses mark; reports \$708M loss

By Lisa Picarelle

APPLE COMPUTER, INC. posted a whopping \$708 million loss for its second fiscal quarter ended March 28, taking large write-offs for its acquisition of Next Software, Inc. and a massive restructuring that slashed 4,000 jobs.

Setting those two items aside, Apple still would have lost \$186 million.

But the dramatic \$708 million loss isn't the firm's largest

—that came in the second fiscal quarter last year, when Apple recorded a \$740 million loss.

Since Amelio took over as Apple's chairman and CEO, the company has posted losses totaling more than \$1.6 billion.

Some of those charges also were associated with a companywide reorganization.

Despite minor new product introductions, including new PowerBook notebooks, Apple's

sales were only \$1.6 billion, compared with \$2.2 billion for the same quarter last year.

Apple, in Cupertino, Calif., sold just 602,000 units in its second fiscal quarter, compared with 892,000 units in the second quarter last year.

"Apple either has to stop or reverse the decline in unit sales or face a takeover," said Charles Wolf, an analyst at Credit Suisse First Boston Corp., a securities firm in New York.

SOME SUCCESSSES

There were a couple of bright notes for Apple. Sales of Power-

Books accounted for 23% of the company's total sales for the quarter, compared with 10% for the prior quarter.

And Claris Corp., Apple's software development arm, had its most successful quarter ever, posting record revenue of \$70 million.

But Apple ended the quarter with a \$46 million backlog—mostly high-end Power Macintosh desktop systems.

APPLE'S FINANCIALS		
	Q1 1996	Q1 1997
Revenue	\$3.1B	\$2.1B
Operating income	-\$69M	-\$120M
Net income	-\$740M	-\$708M
EPS	-\$32M	-\$28M
Dividends	-\$23M	-\$25M
Total	\$9.8B	\$816M
Q1 1997	\$2.1B	-\$120M
Q2 1997	\$1.6B	-\$708M
Total	\$3.7B	-\$828M

"The last 12 months have been stormy, to say the least," said Apple chairman and CEO Gilbert Amelio in addressing press and financial analysts last week. "The worst is behind us. I want to make one thing clear: We won't be satisfied until the company is returned to profitability."

Apple's chief financial officer, Fred Anderson, said the company is still working to return to sustained profitability by the end of its fiscal year in September. Apple officials originally

predicted that the company would be profitable by the end of last year.

Oracle Corp.'s outspoken chairman and CEO, Larry Ellison, has publicly stated that he is forming a group of investors—not associated with Oracle—to mount a bid to take over Apple. Responding to the idea of Ellison, or anyone, taking over Apple, Amelio said, "I feel that regardless of who is head of the company, we are doing what must be done to move the company forward."

Ellison's plan would include turning Apple into a manufacturer of network computers.

"We have an idea. We want to have a product users want to buy," Amelio said. "There will be a place for NCs. But candidly, at this point there is not a market for NCs of any substance. Not a single customer has walked in and pounded his fist on my desk and asked for an NC." □

COMPUTERWORLD

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Computerworld

THERE IS NO such thing as non-electronic commerce. Every product built, bought and invoiced involves electronic commerce (the exchange of value between parties via electronic means). ¶ The big news is not that business is being conducted electronically. Duh!!! The big news is that failure to do so creatively, quickly, reliably and cost-effectively now puts the enterprise at risk. If you're a senior IS decision maker who wants to be in on the reward, instead of regarded as a risk factor, there are three immutable truths about "EC" you need to know.

TRUTH 1 IS' Role is to Make Electronic Commerce Happen



THE CXOS — chief executive, operating and information officers — are spending time telling financial analysts why their orga-

nizations are in front of the electronic commerce pack. Yet, they still haven't convinced their own employees or IS managers (see chart page 3).

Some organizations have legitimate bragging rights: The Vanguard Group (www.vanguard.com), AT&T (www.att.com), Cisco Systems, Inc. (www.cisco.com), Charles Schwab & Co. (www.schwab.com), Hollywood Stock Exchange (an online game found at www.hsx.com), Security First Network Bank (www.sfnb.com), Nationwide

Insurance (www.nationwide.com) and USA Today On-Line (www.usatoday.com).

But in reality, most organizations are milling around, waiting for a visionary in their market to break away from the pack.

A role exists for someone to create and transform executive-level visions into moneymaking electronic commerce first steps. That someone is you.

Information systems executives have to stake out their position in this game of musical chairs before the music stops.

There are plenty of contenders for this role: internal constituencies/rivals (marketing, marketing communications, rogue pockets of IT reporting to business units, skunk works) and external suppliers/rivals (advertising agencies, boutique design houses, consultants and vendors). But with electronic commerce, IS can run the business. Here, IS is the business. IS can make money for the organization. You're in the sweet spot.

Many CIOs recognize this. Between November 1996 and March 1997, researchers at Cambridge Technology Partners' Management Lab polled 374 information technology decision makers about the role they are playing in EC. We borrowed a four-part framework from Gerry Faust, who helps executives identify and take on high-value roles inside their companies at the UCLA John E. Anderson Graduate School of Management's "Managing the Information Resource" program. We asked CIOs which of these roles best described their own EC role. The results:

- **36% - ENTREPRENEUR:** What the organization needs to do in the future to be effective. This role requires creativity and a willingness to take risks.
- **34% - PRODUCE RESULTS:** What the organization needs to do to be successful. This role requires knowing what needs to be done, how to do it and the drive to see that it gets done.
- **22% - ADMINISTER SYSTEMS:** How to do things to ensure the organization is efficient. This requires attention to detail, a willingness to take corrective action and knowledge of the approved way of doing things.
- **8% - INTEGRATE:** Creating a climate conducive to teamwork and cooperation. Sensitivity to

OUT OF TOUCH

Executives, think your EC strategy is ahead of the curve? Guess what? Your employees don't think so...

Which strategy best describes your organization's approach to electronic commerce?

	SENIOR EXECUTIVES	EMPLOYEES
Not any ahead of the best for competitive advantage	43%	11%
We follow the lead to address a business leadership process	41%	4%
We will not move to ensure ability to survive	8%	59%
We are aggressively developing technology	8%	22%

Source: Cambridge Technology Partners' Management Lab, 1996-1997

How much time will you spend on electronic commerce?

How much time will you spend on electronic commerce?

How much time will you spend on electronic commerce?

How much time will you spend on electronic commerce?

How much time will you spend on electronic commerce?

How much time will you spend on electronic commerce?

How much time will you spend on electronic commerce?

How much time will you spend on electronic commerce?

people, moods, climates and group processes are needed to play this role.

More than two-thirds of CIOs feel it's their job to make EC happen, either as entrepreneurial leaders or as go-get-'em, make-it happen types. That's a

leading role, all right.

What does, and does not, a "leading role" involve?

■ IS should not try to unilaterally lead and control EC initiatives. That would only hamstring them. If you try to be a czar, you'll wind up like the





Instead of merely managing chaos, why not capitalize on it? For some, change is a threat, something that must be managed or great harm will ensue. Nonsense. For the stout of heart, change is an opportunity. As the world's premier provider of scalable, manageable and secure Internet solutions, along with leading Internet consulting services, we can extend your enterprise to the world and propel your business forward. Don't get battered by change. Harness it at www.hp.com/go/computing. Capitalize on chaos.

Romanovs. Instead, IS leaders should aim to be part of a team.

New age organizations like Dreamworks SKG and Patagonia structure their EC initiatives like a "pick up" basketball game, creating an internal buzz around a semi-official, semi-unfunded, off-balance sheet skunk work development program.

Traditional enterprises like Bank of Boston evaluate EC projects using already existing IT budgeting procedures, and staff these projects with people from many departments using routine project staffing procedures. The common theme: no muss, no fuss, no political "who-owns-the-future" fights.

■ IS must be seen as an EC thought leader. Organizations generating the biggest payback from their EC investments see IS as playing a significant thought leadership role. This doesn't mean IS must think up, sell and execute the idea. Rather, IS needs to stay connected to the leading-edge thinking and thinkers in EC.

For example, IS management at Vanguard and Nationwide have established "open" EC learning environments: They reach out to thought leaders and practitioners operating outside the company, exposing a critical mass of executives to new thinking and what others have done. From these think-ins, new projects emerge; executives are given the time to adopt what they've learned to their own needs and experiment.

■ While IS must share responsibility for EC with many groups, responsibility must also remain inside the company. Organizations short on time and resources (and who isn't?) frequently turn to consultants and outsource for assistance or push the whole thing onto one department's plate.

This is not a bad thing if it's not done to excess and internal management retains control and stays involved. But too many executives delegate the "vision" portion (the initial value targeting exercise) of the electronic

campaign to consultants, advertising agencies or one internal department like IS or marketing. This is a huge mistake.

■ Budget responsibility should be shared between IS and non-IS management. Long-term success in EC requires a cross-functional sense of connectedness and shared purpose and vision. Getting people to pony up the dough at the inception of the project establishes a precedent for collaboration down the road when tougher decisions and bigger investments will be made.

In summary, EC is not something you do for someone, but something you do with someone. IS must create, then participate in, a channel where employees' energies can make EC projects happen. To fulfill its role — turning vision into action — IS must communicate rather than manipulate; create dialogue, not hold monologues. Above all, IS must foster an informed, accurate and honest exchange of information. That's the ultimate information service.

TRUTH 2 IS Must Create New Skill Sets



IS EXECUTIVES still lack knowledge and experience with the new keystone technology of electronic commerce: the Internet.

In 1984, only 27% of IS managers in a survey conducted by consultancy Nolan, Norton & Co. had had experience designing, building and managing PC applications.

A decade and change later, we conducted a similar survey about the Internet/intranet/extranet. We asked IS managers if they had experience with designing, building and managing Web-centric applications. Unbelievably the answer, once again, was 27%.

IS executives admit they and their organizations aren't spend-

EIGHT JOBS FOR THE EC BRA

Creating an EC team? Here are the eight essential jobs you need to create and fill, according to Richard Wurman, Chief Scientist, Emerging Technologies Center, Sciences Corp., and Vice President, Information at Cambridge Technology Ventures.

1. **Information Architect:** The individual who organizes the patterns inherent in data, making the complex clear ... a person who creates the structure or map of information which allows others to find their personal paths to knowledge.
2. **Content Management:** Logic, not content, has been the focus of application development. Artists, designers, writers and records managers held the undervalued franchise for content management.
3. **Record Management:** Most organizations haven't codified policies for managing electronic records or invested time or money on this. How long should you keep electronic-mail records? Faxes? What records do we have to produce in support of litigation-based discovery processes?
4. **Web Page Development:** Enter Web pages which update dynamically and you begin to get a feel for this emerging issue.
5. **Project Management:** The rise of net-based electronic commerce is creating new IS roles (see story this page). Skills that are rising to the fore in IS — project management, facilitation, contract management — are important here, too. EC will also require IS organizations to cultivate these new skills.
6. **Facilitation:** The rise of net-based electronic commerce is creating new IS roles (see story this page). Skills that are rising to the fore in IS — project management, facilitation, contract management — are important here, too. EC will also require IS organizations to cultivate these new skills.
7. **Contract Management:** The rise of net-based electronic commerce is creating new IS roles (see story this page). Skills that are rising to the fore in IS — project management, facilitation, contract management — are important here, too. EC will also require IS organizations to cultivate these new skills.
8. **Project Management:** The rise of net-based electronic commerce is creating new IS roles (see story this page). Skills that are rising to the fore in IS — project management, facilitation, contract management — are important here, too. EC will also require IS organizations to cultivate these new skills.

ing enough time or money getting smart about these technologies. As the chart on page 11 demonstrates, they give themselves low grades for understanding electronic commerce's implementation realities, resources and competitive environment.

The rise of net-based electronic commerce is creating new IS roles (see story this page). Skills that are rising to the fore in IS — project management, facilitation, contract management — are important here, too. EC will also require IS organizations to cultivate these new skills:

■ **PRESENTATION MANAGEMENT:** IS

requires people who can create order in an information-overloaded world. This is the new breed of information manager Richard Saul Wurman prophesizes to his new book, *Information Architecture*: "The individual who organizes the patterns inherent in data, making the complex clear ... a person who creates the structure or map of information which allows others to find their personal paths to knowledge."

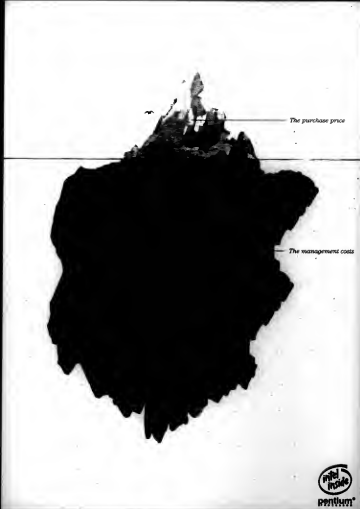
■ **CONTENT MANAGEMENT:** Logic, not content, has been the focus of application development. Artists, designers, writers and records managers held the undervalued franchise for coo-

tent management.

Today, content is king. These people, or at least their skill sets, now must be incorporated into the EC application development process.

■ **RECORD MANAGEMENT:** Most organizations haven't codified policies for managing electronic records or invested time or money on this. How long should you keep electronic-mail records? Faxes? What records do we have to produce in support of litigation-based discovery processes?

Enter Web pages which update dynamically and you begin to get a feel for this emerging issue.

A black and white advertisement featuring a large iceberg floating in a white sea. The iceberg is divided into two parts by a horizontal line. The small, visible tip of the iceberg is labeled 'The purchase price'. The much larger, submerged part of the iceberg is labeled 'The management costs'.

The purchase price

The management costs



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TRUTH

IS Leaders Must Relentlessly Search for EC Value



FEW COMPANIES know how to calculate IT value, let alone consistently deliver it. These systemic weaknesses plague the whole EC scene, where neither a dominant cost model nor even a consistent vocabulary for discussing costs has emerged. (However, IS managers can roughly estimate the size and controllability of costs — see chart next page).

The value issue is a real whammy for IS executives. Credibility is the lifeblood of IS in particular and leadership in general. If your new system isn't worth developing, your credibility is shot even if you deliver systems on time and on budget. To be an EC leader, IS executives must do more than be thought leaders, enablers and coaches. They must be value pigs, rooting for benefit trifles.

We went looking for value in two places. One, we examined actual EC applications and the value they delivered. Two, we found out what sells top executives on EC, by analyzing the business cases used in 42 companies to win funding for EC projects. (Reducing costs, improv-

ing the image of the organization, retaining customers and increasing revenues were the top four hard dollar benefits promised.)

We discovered that whatever your industry, using web technology to service existing customers is the most valuable EC application today in terms of payback, time-to-deployment and risk. This is because the work processes being modified are understood, and Internets, intranets and extranets are natural customer support vehicles.

Self-service accounts for a big part of the payback. Federal Express had the very clever idea of charging customers to track their own packages, i.e., the cost of entering data has shifted from Fedex to the customer. Who knows, an expanded service might let us drive the trucks as well. Charles Schwab's web site points toward the future of finance; it enables customers to do financial planning and download prospectuses and order forms.

Cisco Systems' CIO, Peter Solvik, speaking at the fall Lyceum (a quarterly meeting of CIOs organized by my firm), explained, "The majority of our interactions with our customers now occurs over the Internet. The Internet is doing 70% of the work, the remaining 30% takes up to 1,000 people." Figure out the math. Electronic commerce applications linked with knowledge management work processes have enormous payback.

EC can also deliver value by improving employee productiv-

ity, at least where information handling is concerned. Research conducted by the Emerging Technologies Advisory Group at the Association of Information and Image Management (AIIM) posits that U.S. knowledge workers spend approximately 20% of their workweek simply processing information. Intranets are a huge opportunity area.

Channel management applications (transaction processing over the Internet) offer a high payback but with much higher risk. They require you to modify processes and behaviors of consumers and suppliers over whom you have limited control. Have you ever fired a customer?

These systems are also the most complex electronic applications now deployed. They span the value chain from product marketing through transaction processing to post-sales customer support. The cyber-cash register (the ability to safely exchange money) and the cyber-shipping dock (the ability to make sure customers receive what they bought) remain stumbling blocks. Cyber-security has to be part of any channel management program. Fulfillment modules have to link with legacy databases. This integration is not easy and is not cheap. For every dollar spent on new EC code, four additional dollars will be spent linking back to legacy systems.

On the cost side, the real problem for organizations is stepping up to pay for the infrastructure needed to make EC happen.

Jim Best, ex-IS vice president at Allied Signal and author of *The Digital Organization* (1997, John Wiley & Sons, New York) asked research participants at the Scottsdale Center for Business Technology, "Has Internet technology caused you to change your infrastructure requirements or plans?" Thirteen percent said "some." Sixteen percent said they were "still evaluating the question." Thirty-nine percent said "yes," and an amazing 32% said "no." This led a surprised Best to conclude that most executive teams perceive the Internet to be "fast, free, universal and easy."

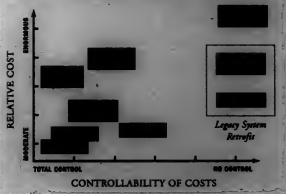
Boy, are they wrong. Best's research suggests that sizable global organizations (40,000+ PCs) need to spend \$18 per desktop per month to keep the bridges, routers and hubs portion of the infrastructure world class. Almost no organization spends at that level today. Organizations where infrastructure is an issue but not an impediment spend \$11 per desktop per month. Organizations coming perilously close to 'red lining' their infrastructures only allocate \$8 or less.

Best's book lays out a six-step process which organizations can use to 'catch up' and 'keep up' when it comes to infrastructure:

1. Centralize management responsibility for infrastructure and standards.
2. Define architecture and establish standards.
3. Perform a "gap analysis." (Assess

WHAT'S THE COST?

While the art of costing EC initiatives remains murky, IS managers already have a sense of the relative price of each cost factor, and how controllable those costs are



Source: 1997 Cambridge Technology Partners study of 43 Heads of Applications Development/Information

how far from the defined architectural standard is each site. Label sites as either compliant, significant upgrade required or total rebuild necessary.) 4. Secure infrastructure funding. 5. Execute an upgrade program. 6. Anticipate future needs.

Making the business case for infrastructure is the toughest challenge facing CIOs. It requires technical competence, communications skills and political savvy to convince senior management.

To conclude, focusing on the three immutable truths will help IS executives avoid trouble in the electronic commerce arena. People need to know that IS' role is to turn EC hopes into EC realities. IS management needs to demonstrate thought leadership and create credibility by upgrading and deploying EC skill sets in pursuit of high-payback, short-duration, risk-appropriate EC investments. Good luck and happy truffle hunting.

ABOUT THE AUTHOR:

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COMPAQ

Has It Changed Your Life Yet?

Fear and loathing on the 'net The Heaven's Gate tragedy came first,

then the Social Security Administration's Web site. They're the most recent examples of which-hunts based on mistaken ideas of what the Internet is — and isn't.

OK, let's take a collective deep breath and review. The Heaven's Gate mass suicide had absolutely nothing to do with the fact that many of the people involved were programmers, or that the cult maintained a Web site. How many people do you know call their bodies "vehicles" and believe that a spaceship will collect them to bring them to the next "level"? And what has any of this got to do with computers, anyway?

Still, some broadcasters depicted this as the "devil on the Internet." Some shows even ran stories about how to keep kids out of net-based cults. They missed the point entirely. This wasn't a computer-related story; it was about the unfortunate choices this group of people made.

This month, a USA Today story and other reports in the popular press sparked a fury about the Social Security Web site, which was then closed down until further notice. But it's worth noting that no one known of any actual privacy breach caused by the site — the furor was about the potential for sensitive information to get into the wrong hands.

To access the site, you had to enter your Social Security number, place of birth and mother's maiden name, among other data. Not too many people knew all of that information about *you*. How about you?

As a colleague pointed out, anyone can request a change of address at the Post Office for anyone else without showing any identification. But once you put a service like that on the 'net, it suddenly becomes evil, and mass hysteria breaks out.

It's good that questions are being raised and that people are concerned. They should be; security and other issues regarding the 'net are far from settled. But it's up to all of us in the computer industry to help educate the public about how to be smart consumers on the 'net — and where the real threats lurk.

Johanna Ambrosio
Johanna Ambrosio, online editor
Internet: johanna_ambrosio@cw.com



The SPA is more than the software industry's antipirate ...

IN MY COMMENT on several points made in a recent column by Maryfran Johnson ("Sunset time," CW, March 31).

For more than 12 years, the Software Publishers Association (SPA) — with the energetic leadership of Ken Wasch, with the assistance of a very professional staff and under the direction of a 15-person board of industry executives — has been a leading and vigorous voice for the software industry. In focusing exclusively on the SPA's efforts to reduce software piracy at home and abroad, the column neglects to highlight the wider range of activities in which the SPA is engaged.

Last year, the SPA spent about \$4 million fighting software piracy. The other \$6 million of the budget was dedicated to working on other issues of concern to our members. It would be negligent for the industry's principal trade association to ignore piracy, which continues to be a significant problem.

For that reason, the board has approved additional investment in antipiracy activities, particularly in the Asian Pacific and Latin America, where the problem is growing. The SPA is running within its budget this year. As a not-for-profit organization, our board authorizes an annual budget aimed at achieving specific objectives — we do not "make profit" or "lose money."

The SPA mission is to protect and promote the software industry. The organization has assisted software publishers and our customers in understanding complex software licenses by providing model license agreements to all member

publishers and by offering training to software users in understanding the complexities of software licenses. Over the past three years, the SPA has provided this training to more than 2,500 IS managers and others.

The SPA is also working closely with the Clinton administration and Congress on encryption and electronic software distribution guidelines that will make it easier and cheaper for the software industry to deliver software products electronically.

It is not "sunset time," but rather a bright new day, full of opportunity and promise.

Bill Goodrow
Chairman, SPA
Washington

... but not everyone's a fan

I'M THE PRESIDENT of a small software company, and I'm so sick of the SPA that I cheered "Yes!" when I read Maryfran Johnson's column. This organization operates in mob-like fashion, running misleading advertising and scaring the heck out of people who mistakenly think they might go to jail for making a personal copy of Microsoft Word.

Personally, I think a little piracy is good for my business. It gets software into the hands (and minds) of users who will likely turn around and buy our software one day when they have a genuine business need for it. Kudos to you, and pants down to the SPA.

Please don't print my name or company. I don't want these mobsters appearing at my door.

Absurd thinking on Macs

ROSSELL F. HOLSCLAW writes that Macintoshes face year 2000 issues (Letters, CW, March 3), because his Windows/Intel machines face these problems. This thinking is completely absurd. He then goes on to take a nasty poke by claiming that Macintoshes are not involved in mission-critical, data-sensitive applications. Eight, the 6 million-plus Macintoshes and compatibles sold last year are all being used for games.

Rob DeMorse
Systems engineer
Mission, Wis.

CIOs don't own information

ALIAN ALTRA's March 3 column ("May the CIO title R.I.P.") is right on the mark. Ever since they started the title, I have been saying from Sweden to Hong Kong that the title of CIO contributes to war/they conflict when there is already too much. It isn't their information — it's the customers'! And when the government starts using the title, I know it's a bad idea.

Robert A. Zawacki
University of Colorado
Boulder

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 917, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8531. Internet: letters@cw.com. Please include an address and phone number for verification.

Autistics offer unique skills to IS

Gary H. Anthes

For many of us, the word "autism" evokes frightening images of children shut off from the world, rocking, screaming or banging their heads. And if we think of autistic adults at all, we are likely to picture Dustin Hoffman playing the odd, card-counting "savant" in the 1988 movie *Rain Man*.

While not inaccurate, those perceptions fail to account for thousands of autistic adults whose special ways of thinking make them quite well-suited for jobs in programming and computer graphics. Autism often leaves those people with poor social and communication skills while bestowing gifts of extraordinary concentration and creativity.

Unfortunately, for every autistic person who succeeds in the workplace, there are eight or nine who fail.

Why? It's partly bias from employers, although often the bias is unintended. One bright but socially inept autistic pro-



For employers able to offer the right kind of environment, the payoff can be significant.

grammer says of the job interview, "I set off every warning flag the interviewer's got. He thinks, 'Boy, I can't quite place my finger on it, but that guy is really weird.'"

The Americans with Disabilities Act of 1990 helped produce user-friendly work environments for those with physical impairments. But the special needs of those with mental handicaps aren't well understood by most employers.

However, it isn't necessary to consult with psychologists and neurologists to understand the conditions under which autistics are most likely to succeed. In interviews for a recent story on computers and autism [CW, April 14], I asked a number of autistics what they need to be successful in the workplace.

They say they require employers who understand and respect their social limitations; they need quiet, stable and predictable work environments; and they must be given very clear goals and objectives.

Teamwork isn't appropriate, they say, nor are management responsibilities.

For employers able to offer the right environment, the payoff can be significant. In the words of one autistic programmer, "We can offer dramatically innovative approaches, the ability to focus on a limited number of things for extended periods to a far greater degree than nonautistics and, on occasion, showcase abilities available from no one else."

Because autism profoundly impairs a person's ability to form emotional attachments and communicate, people sometimes assume autistics lack feelings. But

in my interviews with autistics, I found depression and anger — often combined with a sort of gallows-humor resignation — at the way they are misunderstood, underestimated and often humiliated.

Temple Grandin, an autistic professor at Colorado State University, credits "mentors" for helping her learn how to jump autism's awesome mental hurdles. She now calls on computer professionals to do the same for bright autistic kids, many of whom otherwise are headed for lives of unemployment.

Grandin tells of a bright autistic boy who recently dropped out of high school because he was bored. "If someone came along and plopped a Silicon Graphics workstation in front of him and showed him how to use it, he wouldn't be bored anymore," she says.

Autistic kids should be doing real programming, not "playing with stupid computer games," Grandin urges.

Listen to Grandin. Become a mentor. Hire an autistic person. Call your state's department of developmental disabilities or More Able Autistic People in Crown Point, Ind. ☐

Anthes is Computerworld's senior editor, special reports. His Internet address is gary_anthes@cw.com.

Ethics and metrics aren't connected

Michael Schrage

Years ago, when most of my income came from writing about innovation, magazine editors would buy me lunch. We'd discuss story ideas and then — with the steady nerve of a Chihuahua in a paint mixer — I'd ask how much I'd get paid. Invariably, the answer was about \$1 per word.

We'd chat a bit more. Then I'd ask what problems the editors typically had with their outside writers. Without exception, every editor complained that their freelancers tended to write too long.

Duh. This true tale of reverse incentives popped to mind while reading *Measuring and Managing Performance in Organizations* by Robert Austin (Dorset House, 1997), a clever analysis of the dysfunctional nature of organizational efforts to create and manage performance metrics. The book does a superb job of reviewing the massive literature in this area in a management-friendly way. It offers an intriguing economic analysis of why some metrics are more likely to evoke perverse responses than others.

I was struck dumb — mute, not stupid — by two paragraphs in Austin's book. The first was in the preface: "... I am pleased to report that by the end of this book, I have established a case for the importance of ethical behavior purely on efficiency grounds. ... ethical behavior makes things work better. ... trust, honesty and good intention are more efficient in many social contexts than verification, guile and self-interest."

The second paragraph, appropriately enough, appeared in the concluding chapter: "The fundamental message of this book is that organizational measurement is hard." Duh.

I am not a cynic. I fully support Austin's message that many organizations can create healthy cultures and ecologies of measurement.

But it's time we honestly acknowledge that issues of metrics and productivity have little to do with economic efficiency and virtually nothing to do with ethics.

MATTER OF CONTEXT

We are all kidding ourselves if we believe that our organizations are simply irrational when they implement metrics that frequently yield perverse results. On the contrary, they are being rational — we just don't like the context of their rationales.

And yes, how many of us work in organizations where trust, honesty and good intentions



Issues of metrics and productivity have little to do with economic efficiency.

are consistently more effective than verification, guile and self-interest? Half of us? A quarter? A tenth?

The reason we have metric dysfunction in most companies isn't because organizations are inherently stupid or inefficient. It's because most organizations find it easier and less expensive to be dishonest than honest. Doubt that? How many of you are working on development schedules you consider honest?

Every organization that uses productivity metrics should have the courage and integrity to post comments on the perverse behaviors those metrics provoke. What are the real costs? How do they stack up against the benefits? That's the beginning of honesty.

Unfortunately, honesty — not competence, creativity or effort — is the commodity in shortest supply in most large organizations, not just IS. Austin's book reminds me that what matters most isn't what we purport to measure, but who we are. Of course, that's why so many people in so many companies are so unhappy. ☐

Schrage is a research associate at the MIT Media Lab and author of *No More Tears*. His Internet address is schrage@media.mit.edu.

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COMMENTARY

Netscape comes down to earth

DAVID MOSCHELLA

Has anyone heard the word "Netscape" recently? Is it just me, or is 1997 turning into a black hole for the onetime Web wonderkind? Looking back over the past 12 months, it's clear that the company has lost more than just two-thirds of its stock value.

A year ago, Netscape Communications Corp. was virtually synonymous with the Internet. Today, how many of you know the differences among Navigator, Communicator and Constellation, or between SuiteSpot and Netscape One? At a time when industry mind share is critical, the company's once-great brand strength has dissipated.

Netscape's receding fortunes have been showing up in *Computerworld's* research since last summer.

In the past eight months, the percentage of corporate customers who expect to use primarily Microsoft's browsers has doubled to 33%.

More worrisome, Microsoft has pulled far ahead of Netscape in Web server software, a market that is becoming increasingly segmented. Microsoft has gained clear control of the booming Windows NT business, while Netscape is relegated to the still growing but considerably less dynamic Unix space.

How did that happen?

In a column I wrote in September, I specified three ways Netscape could win against Microsoft: 1) it could sustain a significant product edge either through its own efforts or a Microsoft slipup; 2) it could find a rich partner willing to match Microsoft's freeware strategy and marketing blitz; or 3) it could get the government to force Microsoft to charge for Explorer and/or unbundle its Internet Information Server from NT.

In a November column, I argued against Netscape's shift away from the mass-market desktop and toward the Fortune 500. It was clear that the high-end enterprise market would prove more difficult and lonely than the relatively open consumer space.

Unfortunately, all four factors are now working against Mr. Barbakade and company. Microsoft has broadly matched Netscape's product offerings; Netscape has settled for a long list of relatively weak alliances rather than any hard-core major vendor support; the government is apparently more worried about the proposed merger of Staples and Office Depot; and consumer marketing has virtually vanished from the company's list of priorities.

In one way, it's hard to fault Netscape.

Moschella is senior vice president of research at Computerworld, Inc. and author of Waves of Power, Dynamics of Global Technology Leadership (Amacom). His address is david_moschella@cw.com.

When the stock market decided 16 months ago to value Netscape at \$7 billion, the company suddenly had a lot to

live up to. Certainly, you couldn't have a \$7 billion browser company.

Netscape was clearly right to enter the server market. Where it has gone astray is in trying to become a full-service internet provider. That made cool relations with IBM/Lotus and — until recently — Novell inevitable.



As if things weren't tough enough, Sun Microsystems has just announced an aggressive new push into the Web server software business, demonstrating that it, too, is now a Netscape rival. After the sunny days of 1994-95, Netscape now stands virtually alone, with all the sharks closing in fast. □



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Briefs

SnapShot's new focus

By Tim Ouellette

IBM IS TRYING to make it so that moving data between its Rascal mainframe disk systems is a snap.

The company recently announced new features to SnapShot Copy, which is sold as an MVS software option for IBM's Rascal Virtual Array disk systems.

The features give users more flexibility in how they can use the product, which has been lauded by observers but not widely installed since IBM began to license the technology last year from Louisville, Colo.-based Storage Technology Corp. SnapShot Copy creates a fast copy of data pointers, not the data itself. That speeds up backup processes, or the movement

of data between Rascal disk systems, and saves on the requirements for extra disk space.

For example, the Safeway, Inc. supermarket chain based in Pleasanton, Calif., has cut three hours off its weekly batch processing with SnapShot and doesn't have to take systems offline during weekend backups.

But because SnapShot software

SnapShot Copy, page 44

WINTEL SPEC
PC 98 design
guidelines get
mixed reviews

By April Jacobs

PC USERS may find it easier to run next year's machines and create applications for them based on preliminary design guidelines issued by Microsoft Corp. and Intel Corp.

The software and chip giants recently gave hardware engineers a look at the PC 98 Design Guideline, which calls for faster processors, a television set-like on/off manageable feature called OnNow and a single drive.

Guidelines, page 44

FUJITSU/ICL 7200
HANDHELDPopularity of handhelds,
smart phones building

By Mindy Blodgett

IN THE PAST few weeks, several offerings have joined the rapidly expanding handheld computer market, and more product announcements are expected in the smart-phone industry.

According to a study from Frost & Sullivan, Inc., a research firm in Mountain View, Calif., handhelds are expected to catch on in a big way in corporations over the coming years. As more workers go mobile, they will be searching for lightweight devices for data and voice communications.

According to the report, revenue for the handheld computer market, still in its infancy, is expected to reach \$1.77 billion worldwide by 2002.

HANGING BACK

At the same time, smart telephones—devices that combine cellular voice communication and digital data capabilities—are off to a slower start. Diana Hwang, an analyst at International Data Corp. in Framingham, Mass., predicted 74,000 smart phones will be sold in the U.S. this year.

Handhelds, page 44

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Online backups

► Market for restoration services still small, rates vary

By Matt Hamblen

MARE SULLIVAN showed up at work one Friday morning to find that two disk drives on his PC had died, wiping out months of accounting records and years of personal contact and scheduling information.

Paranoid.

Then Sullivan, an attorney at Sable, Makoff & Gasky in Pittsburgh, recalled that he had done a beta-test backup of his data with an online service about a month earlier.

"The service definitely saved my butt. I got all the critical information back."

— Mark Sullivan,

Sable, Makoff & Gasky

The service, NetTape, from SafeGuard Interactive, Inc. in Pittsburgh, mailed Sullivan a diskette to help him connect to SafeGuard's World Wide Web site and restore his files on a new hard drive.

"The service definitely saved my butt," Sullivan said, "I got all the critical information back."

SafeGuard has been providing its service since February, charging a flat annual fee of \$119. There is an additional \$44.95 fee for customers who want to re-

ceive a CD-ROM of backed-up data.

Connected Corp. in Framingham, Mass., another online backup service, charges a flat monthly fee, plus a fee for increments of data retrieval.

The market for personal and small-enterprise online backup and restore is in its infancy, and NetTape's flat-rate pricing should help SafeGuard's chances in the market, said Michael Peterson, president of Strategic Research, Inc. in Santa Barbara, Calif. Flat-rate pricing means no surprises when the bill comes, he said.

But Sullivan, who beta-tested NetTape for free, said the \$119 annual fee "seems high." He said his ideal storage and backup offering might combine a detachable tape or disk drive and an online service such as NetTape. He said it took nearly eight hours to do the initial backup.

NetTape can be set to do backups every night or more often when a user isn't using a laptop or PC.

Meanwhile, storage vendor Stac, Inc. in San Diego recently announced that its Replica backup and recovery software, previously available for Novell, Inc. NetWare, is now available for Windows NT.

"[Replica] restores extremely fast," said Terry Tusher, a senior network analyst at Lithonia Lighting in Conyers, Ga.

Tusher said he rebooted and restored 60 bytes of data in 21 minutes, a process that would have taken one to two days. "And it didn't take a lot of expertise, either," Tusher said. "I dare say, a trained chimp could do a full restore." □

Handhelds gain in popularity

CONTINUED FROM PAGE 43

Hwang said the smart-phone market is new, so there aren't many users. She said handheld computers are catching on "through the back door — people are buying them for personal and work use, and [information systems] is starting to think they should put handhelds on their approved vendors list."

NEW TUF

Users said handhelds are breaking in to the enterprise. J. Briscoe Stephens, a satellite systems coordinator at NASA's Marshall Space Flight Center in Huntsville, Ala., uses a Compaq Computer Corp. handheld PC with Microsoft Corp.'s Windows CE operating system.

Stephens said he uses his pocket-size handheld to read electronic mail because it is easier to carry than a notebook computer. "My lab director wanted some numbers one day, and when I just reached for my palmtop to give it to him, his jaw dropped — that I could do so much with something so little," he said.

Recent handheld and smart-phone developments include the following:

■ Fujitsu/ICI Systems, Inc. in San Diego, Calif., last week announced two ruggedized pen-band handhelds, the 7200 and the 7600. They are aimed at vertical markets such as the health care, field service and transportation industries. The 7200 can run MS-DOS and costs \$2,635; the 7600 supports Windows 3.1 or Windows 95 and costs \$4,500.

■ Sharp Electronics Corp. last week announced the SE-5000, an organizer that will let users send and receive E-mail and synchronize data with PCs and notebooks. The SE-5000 will be available this summer. Pricing wasn't available.

■ Nokia, based in Finland, this summer plans to release the Nokia 9000 smart phone in the U.S. The device will let users place cellular phone calls, send and receive faxes, send E-mail and short messages, and provide Internet access. Pricing wasn't available.

■ The Philips Mobile Computing Group, a division of Philips Electronics N.V. in Sunnyvale, Calif., is shipping the Velo 1, a handheld PC that supports Windows CE. Pricing ranges from \$699 to \$739. □

Design guidelines win mixed reviews

CONTINUED FROM PAGE 43

er model for Windows operating systems.

Analysts gave the specifications mixed reviews. They cheered the management features and the model for a single operating system driver model.

But analysts called some of the hardware goals too ambitious, including a proposed "device bay" that would let users upgrade PC peripheral devices without having to open a PC chassis. And analysts said the elimination of Industry Standard Architecture bus support is too much change, too soon.

GOING TOO FAR

"I think [Microsoft and Intel] are being realistic about what needs to be done with things like common device drivers. But they are pushing the edge in some places like device bay, which is still a strong 'maybe,'" said Chris Le Tooc, an

analyst at Dataquest in San Jose, Calif.

Users interviewed by Computerworld said support for the Advanced Configuration and Power Interface (ACPI) is important to them. ACPI will align hardware, operating systems and peripherals such as modem and PC cards.

"Everyone needs to start supporting the ACPI specification, which will make it a lot easier to configure machines," said Franz Field, a systems analyst at Shell Offshore, Inc. in New Orleans.

Field said he favors the common driver model because application developers still have to write for separate operating systems. But until hardware makers such as Dell Computer Corp., Compaq Computer Corp. and IBM have their say, the spec won't be finalized.

Some hardware makers, such as IBM, are already selling machines that comply with the preliminary specs. □

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Briefs

1996 worldwide database market

Total revenue: \$5.7B*



*Estimated
Source: International Data Group, Inc.

IBM Adapts Intel Java
Adaptive Information Systems, Inc., an Austin, Texas, Calif., test automation Adaptive/PlayStation Suite 3.0, software that combines document management, testing and performance measurement capabilities, says the new version will support Java. The software allows users to create, modify, execute and analyze test cases. It also allows users to create and maintain test cases.

Oracle's New Tool
Oracle Corp., an Redwood Shores, Calif., is shipping a new version of its Oracle SQL*Plus tool with a redesigned user interface and a new built-in editor for writing frequently executed queries.

Win/NT Server 4.0
The Windows NT 4.0 server is a replacement for Windows NT 3.51. The new version of the Windows NT 4.0 server will support the new NTFS file system and the new NTFS file system.

A. B. Smith's new NT
A. B. Smith's new NT 4.0 server is a replacement for Windows NT 3.51. The new version of the Windows NT 4.0 server will support the new NTFS file system and the new NTFS file system.

OPERATING SYSTEMS SCO boosts Intel-based UnixWare

► Internet, clustering features added

By Jaikumar Vijayan

SCO, INC. is boosting the capabilities of its UnixWare operating system with Internet and clustering features.

The features are aimed at giving users of Intel Corp. platforms a simple way to set up UnixWare World Wide Web servers and intranets and increase availability of servers through clustering.

The Santa Cruz, Calif., company recently announced UnixWare 2.12, the latest version of its Unix for Intel platforms.

The release features an integrated Web server and integrating tools from Netscape Communications Corp., as well as network connectivity technologies and backup and restore services (see chart, page 49).

Such capabilities have been around for years in the RISC Unix server market, but they have only recently begun to migrate to the Intel server space.

In a related move, SCO announced its ReliantHA high-availability clustering products for the SCO UnixWare platform, based on Tandem Computers, Inc. technology. The software allows users to link up to four Intel-based servers into one cluster so that if a server fails, another node takes over automatically.

"These are interesting announcements," said Bob Celmer, a technical fellow at AutoZone, Inc., an auto parts retailer in Memphis. The company uses SCO-based point-of-sale systems in each of its 500 stores across the country.

"With these features, users can purchase relatively inexpensive Unix boxes and set up Web sites quickly," Celmer said.

"SCO is coming out with this clustering technology at a good

SCO, page 49

Developers await prime-time Java

By Sharon Gaudin

DEVELOPERS ARE hoping slowly improving Java security will let them build applications that are more critical to the business than spinning tops and barking dogs on a Web site.

Sun Microsystems, Inc., is expected by the end of the year to expand Java's security functions to applets, once safely separated from files, databases and the operating system, will be able to move across a network, read and write to files and access databases.

Users and analysts say that should give Java the kind of power they have found only in Microsoft Corp.'s ActiveX controls.

"We use some Java, but when we have something big we've had to go with ActiveX," said David Schrier, director of product development at Portsmouth, N.H.-based Black Diamond Consulting.

"Java applets will be a lot more useful to us if they can read and write files... They'll lend themselves more to real business applications," said

"I'd like to use [Java] for mission-critical applications, but... I'm just not sure it's ready."

Schrier, whose company builds World Wide Web sites and has developed a three-dimensional imaging tool.

But as popular as Java has become, many developers haven't used the cross-platform language to build real mission-

Developers, page 48

Tibco 'pushes' Rendezvous middleware

By Tim Ouellette

TIBCO, Inc. is shoving itself into the Internet "push" technology fray by unveiling its Rendezvous product to make it a reliable, cross-platform delivery vehicle for pushed data.

The Palo Alto, Calif., company is shipping its Rendezvous 3.0 messaging middleware with new features to justify the name: managed delivery features and high-availability options for applications developers.

"Push technology on the Internet is a natural fit for Tibco's products," said Ed Ardy, an analyst at International Data Corp. in Framingham, Mass.

"They continue to take that technology and package it so that, though they still have work to do to adapt it to the Internet," Ardy said.

Messaging middleware lets multiple applications on different platforms share data through the use of secure, asynchronous data messages. Tibco, page 48

Forced migration worries Sybase users

By Craig Stedman
Orlando, Fla.

SYBASE, INC. USERS ARE on a forced march to the latest version of the company's SQL Server database because support for older releases will end by the middle of next year.

And the potential for pitfalls along the route weighed heavily on attendees at the International Sybase User Group's annual conference here this month.

Several users said migration was the No. 1 issue, on their

minds, dwarfing even the Emeryville, Calif., company's plans to unify its databases with common development and administration tools [CW, April 14].

"I have my plate full for the rest of this year just getting up to the latest release of SQL Server," said Chuck Stutz, a senior systems analyst at Albemarle-Culver USA, Inc. in Melrose Park, Ill.

The maker of shampoo and other personal-care items uses SQL Server 4.9.3 to track inven-

Migration, page 48

When Sybase will stop supporting older versions

SQL Server 4.9.2

- End of 1997
- Digital Unix
- MCR System 3000
- Sequent Series 2000
- Silicon Graphics Irix

■ Mid-1998

- Digital OpenVMS
- Hewlett-Packard HP-UX
- IBM AIX
- Sun Solaris and SaaSOS

Developers await Java

CONTINUED FROM PAGE A7

critical applications. The problem, they said, is that the security features that make it a relatively safe language also make it relatively inefficient.

Java applets sit in what Sun calls a sandbox, a separate environment that allows the applets to execute programs without touching anything on the operating system. That operating system independence limits what the applets can do because they don't have access to files or databases.

By contrast, Microsoft's rival ActiveX components sit right on the Windows-based operating system, giving the components direct access to all Windows functionality. ActiveX, because it is built in to many Microsoft products, is more widely used than Java applets.

But what gives ActiveX its power also gives some developers security nightmares: rogue ActiveX component could unexpectedly delete files, change

stored information — or shut down a system.

KEEPING CONTROL

JavaSoft, the Java-focused division of Sun, hopes to gain some ActiveX-like power without completely letting the security horse out of the barn. It plans to enable developers to specifically control which files, hard disks and databases the applet has access to, rather than completely corraling it or giving it carte blanche access to everything. That would give a Java applet added capability while keeping its relative security. A JavaSoft

Forrester Research, Inc. estimates that 60% of businesses with 5,000 or more employees use Java. And 40% of those businesses will adopt Java as a strategic language this year.

spokesperson said the expansion should be included in the Java Development Kit by the end of the year.

For example, a developer could download an applet from a tax consultant. The applet would have access to the user's tax database, and it could read and write to certain financial files. But unless the applet was digitally signed by the tax consultant, it wouldn't be accepted into the system.

Mike Nolan, a systems analyst at Houston-based Amoco Corp., said the security improvements sound good, but he added that he is skeptical about the power they will actually add to Java.

"I'm not totally convinced. Won't be until I can see it," Nolan said. "I'd like to use it for mission-critical applications, but I'm going to have to wait and see. I'm just not sure it's ready."

Erica Rugulies, a research analyst at Hurwitz Group, Inc. in Newton, Mass., said she thinks the security improvements are going to be substantial enough to pull Java right in behind ActiveX in terms of power. □

Migration

CONTINUED FROM PAGE A7

hory at its warehouses.

A painstakingly clean migration to SQL Server 11 is crucial, Strauch said. "We're shipping \$2.5 million worth of products through the Sybase system every day, and we can't afford any downtime."

Sybase officials told customers in January that support for versions 4.9.2 and 10 of SQL Server would start being phased out at the end of the year.

Users who have migrated said the process can be fairly straightforward. But they warned of potential "gotchas" in the form of stored procedures and other pieces of SQL code that don't work properly after being moved to SQL Server 11.

SQL Server 11 "is much less forgiving" about syntax errors and other sloppy coding, said

Richard Kittinger, a senior developer and database administrator at HBO & Co., a medical software vendor in Atlanta.

As a result, he said the new database wouldn't run some

stored procedures that passed muster with SQL Server 10.

"Zapping sloppy code is good," but it can leave you with a lot of things to check and rewrite," Kittinger said. HBO & Co. also had to alter query optimization code to keep performance humming when its customer support operations were switched to SQL Server 11 last fall, he added.

Bowing to the migration complexities users face, Sybase officials said they will grant six-month support extensions on a case-by-case basis.

Extra time would help lower the risk of business mishaps, said Bob Mayes, manager of database operations at Banc One Corp.'s information systems unit in Columbus, Ohio. Banc One has to convert 200 separate SQL Server 10 databases running on 20 Unix servers, and finishing that by December could be tricky, Mayes said.

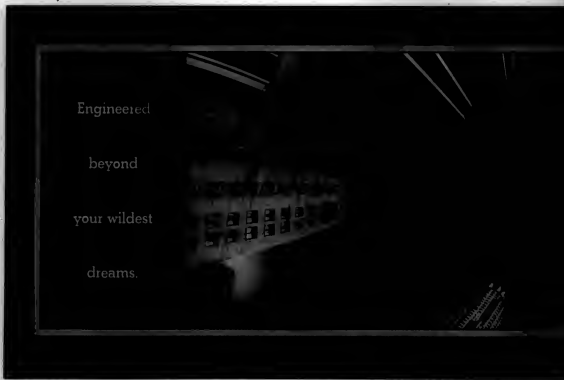
Stringent testing should catch any code incompatibilities, "but if we test everything, we'll never get it done by the end of the year," Mayes said. "We're kind of in a catch-22 situation." □

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Tibco 'pushes' middleware at Web SCO boosts UnixWare

CONTINUED FROM PAGE 47

held in queries.

By writing to the middleware transport, developers can avoid writing complex communications code for specific hardware.

Tibco's approach to messaging, which is called publish/subscribe, allows users to register standing requests for information on a server that runs

Rendezvous and have new information automatically routed to their desktops as it becomes available.

That differs from the leading middleware product on the market, IBM's MQSeries. MQSeries works on a pull model, in which users request data messages from a queue only when they need them.

"What I see is that publish/subscribe technology provides an effective way to create highly scalable processing for my Web site," said Chuck Dornbush, president of News Village LLC, an Internet-based firm in Cambridge, Mass.

But there may be fewer differences between Rendezvous and MQSeries in the future.

Rendezvous, which has a long history of use in financial markets that need to push thousands of price changes to bro-

kers and other interested parties, also can act as a pull mechanism, much like MQSeries. IBM officials have said they have a prototype of MQSeries that runs a publish/subscribe model in the lab.

"IBM wants to have a publish/subscribe service that

The messaging middleware market is expected to reach \$212 million this year, according to International Data Corp.

runs on top of MQSeries' backbone," Acly said.

For its part, IBM announced last week a new Internet gateway for MQSeries that turns World Wide Web data requests into MQSeries messages that retrieve the information.

Rendezvous costs \$495 per user and \$1,200 for a developer's kit. □

CONTINUED FROM PAGE 47

time," said Jean S. Bozman, an analyst at International Data Corp. in Mountain View, Calif.

"They have a good opportunity as far as departmental servers go," because a lot of users are looking for the high-availability and scalability the technology offers, Bozman said.

Microsoft Corp. is trying to deliver its version of clustering technology for Windows NT-based Intel servers. Wolf Pack is being jointly developed with several other vendors. When it is announced later this year, Wolf Pack will offer two-way fail-over clustering.

For example, SCO's latest version of UnixWare comes integrated with Netscape FastTrack server for creating and managing Internet and intranet sites. It also supports Netscape's Navigator Gold client software for Web navigation, electronic mail and support for Web-based multimedia applications.

Meanwhile, SCO also is try-

ing to boost the reliability of its operating system by bundling in new clustering features based on Tandem's Eclipse technologies and ServerNet interconnect architecture.

The technology allows users to do fault detection, continuous server monitoring, automated fail-over and fast recovery in the event of a server crash. □

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Introduction

There's no shortage of products for gathering data. Due to advances in storage and DBMS technologies, the amount of information collected by businesses is doubling every five years.

But many organizations are having a hard time finding ways to use all that data to increase their bottom line. When data volume grows too big, few companies have the capacity to make sense of it all.

Many data access and reporting tools — RDBMSs, multidimensional analysis tools, ad hoc query and reporting software, and statistical analysis packages — let organizations probe all that corporate info. But these tools do not enable users to find patterns hidden in vast databases or pinpoint the factors they are seeking to help them make faster, more accurate business decisions.

Only data mining software — the most complex of data query tools — can help companies retrieve nuggets of valuable information from the depths of their corporate databases. Data mining software discovers previously unseen patterns in that information by answering vague questions (unlike traditional data queries,

Data mining
gives companies
a way to use
corporate data
in order
to help their
bottom line.



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This White Paper was produced under the direction of Technology B Business Integrators Inc. (TBI). TBI, a leader in IT outsourcing, strategy and performance measurement, provides corporations with IT-oriented business solutions. TBI also publishes the IT Services Letter, which serves both vendors and end users. TBI's client list includes Fortune 1000 companies across various industries.

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which are specific and aimed at a particular subject).

Due to its complexity, data mining technology has traditionally been used in scientific and engineering settings since it originated in university labs. The first approaches were based on rule-induction systems, neural networks and advanced regression statistics, and early users tended to be persons skilled at analyzing such data.

But data mining is now growing common in business environments, particularly in companies with large volumes of data; communities of users who are not data analysis specialists; and corporate data that is detailed and multifaceted, with data relationships that are ad hoc and changeable, not predetermined or even logical.

This White Paper will look at how data mining tools are providing these businesses with a better understanding of the buying patterns and product preferences of their customers, and how these companies are using this information to enhance customer loyalty and improve their bottom lines.



The Secret's Out Data Mining is In

Nearly every major firm is implementing decision support systems that give end users and senior managers access to massive amounts of corporate data. But DSS systems lead to problems. Data volumes are too large and complex

for users to understand them. Users limit their data analysis to their own initial assumptions. And today's tools may be fine for accessing and reporting data, but not for doing business predictions.

The software that can handle these three problems — data mining software — is becoming common in many business environments.

Even so, many businesses remain secretive about their use of the software. In 1995, industry research firm Meta Group began a three-year quest to sur-

vey 2,000 companies, to learn the extent of their data mining activities. Little did analyst Aaron Zornes know how hard the survey would be to pull off.

"Nobody wants to talk about [data mining]," he says. "Visa, American Express, Wal-Mart, K-Mart, AT&T and MCI are all doing it but they won't tell you what they're doing."

Why are companies so tight-lipped? Because "corporations who took a risk and spent a lot of money and time on data mining when it was unproven technology don't want their time-to-market competitive edge to be eroded," says A.J. Brown, vice president of worldwide marketing at DataMind Corp., a vendor of client/server data mining tools in Redwood City, Calif. "They want to leave technology laggards out there for a while."

Data mining has remained a secret for so long because it is a



Percentage of survey respondents utilizing each abstract

Source: Meta Group

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Data Mining Software Helps Banks Improve Aim

The Bank of America (BoFA) and Mellon Bank are both using data mining software to develop pinpoint accuracy in marketing and pricing financial products, such as home equity loans.

BoFA's data warehouse is so vast — for some customers, there are 300 data points — that traditional analytic approaches are overwhelmed. But the //Discovery suite from HyperParallel, a San Francisco developer of parallel Knowledge Discovery software, can evaluate millions of records with hundreds of variables. "We have given them 200 to 250 variables and tens of millions of records, which they have processed easily," says Dave McDonald, VP of BoFA's National Consumer Asset Group (NCAG). "We don't know what their limit is."

Retail lending customers consist of those who make little use of their credit limit (low revolvers) and those who maintain a high outstanding balance (high revolvers). Each group presents marketing challenges.

Low revolvers present a low risk of defaulting and incurring write-off charges, but generate little or negative net income because the cost of servicing them is nearly the same as for high revolvers. Banks often offer them programs that encourage greater use of the credit line or identify opportunities to cross-sell higher margin products.

High revolvers consist of high- and medium-risk components. The high risk segment carries the potential for default and charge-off costs. For the medium-risk segment, marketing programs focus on retaining profitable customers and acquiring new customers with similar profiles.

But according to a new school of thought, customer behavior changes over time. Seeing

who represents the greatest profit potential can only be achieved by considering the costs and revenues of customers throughout their life-cycles.

Such a detailed analysis is just part of the challenge. For each market, BoFA can offer a variety of tailored product packages by adjusting fees, interest rates and features. The result: a staggering number of potential strategies for reaching profitable customers. Sifting through the vast number of combinations requires the ability to identify very fine opportunity segments.

For the project, data was extracted from the warehouse and shipped to HyperParallel. Using the vendor's //Cluster tool to discover hidden patterns, the team learned that a certain set of customers was 15 times more likely to purchase a high-margin lending product.

Next, the team used //Sequence to determine the sequence of events leading to purchasing. The team fed the parameters to HyperParallel's scalable induction algorithm and built a model for finding other customers — a model so accurate that it discovered people already in the process of applying and being approved for the lending product. Using this profile, a final list of quality prospects for solicitation was prepared. The response rate exceeded past results dramatically.

For McDonald, this is just the start. Rather than traditional large, seasonal, 500,000-piece marketing campaigns, he envisions a continuous process approach, with many small ongoing offers shaped by past efforts. He plans to continue to use the rapid analysis services of HyperParallel to develop modern analytical methods for other banking products.

Mellon Bank believes in the concept of
continued on pg. 18

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Nearly 70% of the data mining process consists of preprocessing — just cleansing the data so it's ready to be mined.

Many business analysts would prefer 70% accurate results in a day to waiting a week for 90% accuracy.

complex process. According to Tej Anand, director of knowledge discovery at NCR's Human Interface Technology Center in Atlanta, 70% of the data mining process consists of preprocessing — just cleansing the data so it's ready to be mined. For users such as Steve Brown at ADP's customer service operation in Portland, Ore., the figure is closer to 60%.

During preprocessing, attention is focused on a subset of data, which is determined by a data mining discovery process done prior to the in-depth analysis. During this process, a data mining engine scouts huge volumes of data and discovers "hot spots" worthy of further investigation.

MINE FASTER

To encourage broader commercialization of the technology, vendors are trying to speed up the data mining process. One theory is to shorten the time needed for data cleansing. NCR's Knowledge Discovery Workbench suite of analysis tools has a graphical desktop with filters that allow a user to move dirty data graphically to ready it for loading.

IBM has made a big investment in speeding up the data mining process. Last September IBM opened its \$45 million Teraplex Complex, where it is working on ways to

optimize data mining on large data warehouses.

The complex, which consists of centers in Poughkeepsie, N.Y., and Rochester, Minn., "stress-tests" live customer business intelligence systems and applications, particularly large data warehouse and data mining projects, on IBM's S/390, RS/6000 and AS/400 families of hardware.

The types of solutions being tested, such as 15TB warehouses, "are new to everyone," says Evangelos Simoudis, vice president of Global Business Intelligence Solutions for IBM. "We want to know how long it takes to execute a query on a particular machine, how tools interconnect and what happens when 1,000 users on one machine are using business objects simultaneously."

One way to accelerate the mining process is to trade off accuracy for speed. Many business analysts would prefer 70% accurate results in a day to waiting a week for 90% accuracy, notes Simoudis.

However, many existing data mining algorithms simply cannot deal with huge data sets. The problem, says Simoudis, is that the algorithms used in these situations were developed for a different set of conditions. "The discovery-driven algorithms often hit brick walls, especially against large data



sets," he says. "They do not always scale, and their mathematics are not very extensive. We need a new breed of algorithms that scales better and takes advantage of parallel processing better."

Current algorithms were designed for use on single-user workstations, in a file-to-file format. "Today, more people have large parallel databases with terabytes of data, but hardware vendors have provided no infrastructure for writing programs," says Allan

Razdow, president of Torrent Systems. The Cambridge, Mass., firm is trying to fill in the data mining gap in parallel computing with a development environment, called Orchestrate, for building scalable software for data warehousing.

Component-based Orchestrate hides the complexities of executing a parallel program through the use of parallel data mining algorithms. Its library of components includes a neural network that can be trained in parallel. "But it's not enough to

have good algorithms," says Razdow. "You have to have the infrastructure to deliver data to and from them."

Orchestrate lets users get data out of these algorithms with the performance they need on parallel systems. For instance, Orchestrate would allow a user to perform a parallel sort without orchestrating 100 copies of a sorting package on 100 machines.

Says one user of Orchestrate: "We had little chance of meeting our deadlines without it. It

More Questions than Answers? That's Good

Sometimes the value of data mining software is not just the patterns it finds, but its ability to help a user look at something in a new way.

The customer service operation of Automatic Data Processing (ADP), in Portland, Ore., had been using spreadsheets to drill data, such as call arrival times, coming off its transaction processing system. That data was used to log wait times, determine staffing levels, and answer questions such as whether the staff did better on priority or non-priority calls.

When DataMind Corp., a vendor of data mining tools in Redwood City, Calif., approached ADP to beta test DataMind Solo last year, hardware/system support analyst Steve Brown was all for it. "In the past our tools were skimpy at best," he said. Data mining "sounded like it would let me try some things I wanted to, like statistical analysis." ADP tested the software on Windows 3.1 and is now trying out Version 1.3 of DataMind's Professional Edition under Windows 95. One thing the software helped ADP discover

was that it was better at solving problems on Mondays and Tuesdays. Although the software can show users the components it put together to form its analysis, sometimes the reasoning is purely intuitive. In this case, Brown said, it was because companies tend to fix system reborts on Monday, so "there were lots of easy fixes."

The software also showed that the seniority level of technicians did not matter much when it came to measuring the success of customer calls. That surprised people at ADP at first, until they realized the reason for that seeming aberration: The senior people take the harder calls.

"Sometimes the software opens more questions than answers, and gets you thinking in ways you weren't thinking before," said Brown. "And that's what we wanted it to do."

ADP has started using Professional Edition for larger and more complex data sets. The software's biggest limitation, says Brown, has been the quality of the data. "Cleaning data is 80% of the process," he said.

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The rush to fill the demand for data mining tools has attracted a diverse group of suppliers.

Venture capitalists view data mining as the next step in the 12-year-old and still lucrative DBMS marketplace.

takes away the headaches of parallel programming."

The rush to fill the demand for data mining tools has attracted a diverse group of suppliers: computer manufacturers like IBM and NCR; reborn AI vendors; RDBMS suppliers; upward-thinking OLAP vendors; and parallel processing expatriates. Both Thinking Machines Corp., in Bedford, Mass., and NeoVista Solutions, the Cupertino company once known as MasPar Computer, abandoned the hardware business to concentrate on data mining software.

And start-ups like DataMind and HyperParallel continue to enter the market, courtesy of funding from venture capital firms, who view data mining as the next step in the 12-year-old and still lucrative DBMS arena.

DBMS vendors are also intrigued by data mining. Oracle, Informix Software, Sybase and Red Brick Systems are all

encapsulating data mining functionality in their SQL engines. Red Brick, in Los Gatos, Calif., integrated data mining functionality into Version 5.0 of its data warehouse RDBMS last fall. Its Red Brick Data Mine Option is server-based software that can be used to read very large volumes of data; its Data Mine Builder is a GUI-based tool for Windows PCs.

The data mining club also includes Tandem Computers, the Cupertino vendor of fault-tolerant systems and a DBMS. In February, the company introduced its Object Relational Data Mining architecture, which establishes a standard SQL interface between client-based data mining tools and object relational (as well as simply relational) database engines.

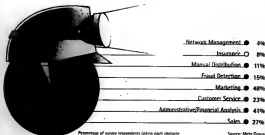
The database engine performs the data manipulation functions required by the data mining algorithms. According to Tandem, this will reduce processing time and make management easier.

STANDARD NEEDED

However, the industry still needs a standard method for data mining encapsulation in RDBMSs. "We have to come up with a knowledge discovery query language," says Anand, noting that if a knowledge dis-

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Functional Areas Driving Current Data Mining Projects



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Mining the Largest Data Warehouse

Data mining and data warehouses are closely related. Once viewed as a subset of the activities associated with a data warehouse, data mining today directly influences the design

and implementation of large data warehouses.

Data mining is often performed beside the warehouse, with discovery and prediction analyses performed in the mine. Data is moved from the warehouse to the mine where it is restructured, transformed and analyzed. If the warehouse is a massively parallel processing (MPP) computer, the mine may reside as a separate repository in the warehouse.

Although data mining caters to a different group of users than the typical warehouse, the technology can help companies

focus on the most important information in their warehouses. For instance, when data mining tools are implemented on client/server or MPP computers, they can be used to analyze massive databases and get answers to questions such as, "Which clients are most likely to respond to my next mailing, and why?"

Many companies specialize in large-scale data warehousing solutions. One of them is NCR, whose solutions consist of its WorldMark 5100M server, Teradata parallel processing RDBMS, and consulting ser-

vices in the areas of database design, data transformation and data management.

NCR also offers a Management Discovery Tool that allows users to mine data for changes over time in sales performance indicators. The product displays mining results to users in natural language, text, tables and graphs, or as HTML documents so they can be delivered over the web. NCR has also started using HyperParallel's Discovery suite in its data mining tools.

In February, megaretailer Wal-Mart expanded its existing relationship with NCR to increase the size and information analysis capabilities of its data warehouse by adding new customer preferences data.

NCR agreed to supply one new 5100M MPP server and to upgrade an installed 5100M to 96 nodes. The two servers, which run the Teradata RDBMS, will triple the size of Wal-Mart's warehouse to over 24Tb. With the increased



capacity, Wal-Mart retains its ability to boast having the largest commercial data warehouse in the world. More than 30 applications run on the system, which handles as many as 50,000 queries in one week.

The expansion of the warehouse was needed because of Wal-Mart's dependence on detailed data at every level to execute its business strategy. The retailer analyzes every cost and every line item.

Although Wal-Mart's data warehouse incorporates information on a nationwide basis, that information can be tailored by individual stores to give merchandise buyers insight into local purchasing patterns.

Information in Wal-Mart's data warehouse is collected from the retailer's 2,900 stores and used to enhance its decision support system. Using the 65 weeks of data kept by item/by store/by day, Wal-Mart buyers can query and analyze customer buying trends to make decisions on replenishment and mark-downs.

Reuters, a provider of news and realtime information to 340,000 users, also turned to NCR to increase the size and capabilities of its data warehouse earlier this year.

NCR will supply five 5100M servers that will be integrated with Reuters' existing NCR 3600MPP systems running Ter-

adata and NCR's Top End enterprise middleware software. The result: a 500Gb data warehouse, one of the largest in Europe.

According to Tej Anand, director of knowledge discovery at NCR's Human Interface Technology Center in Atlanta,

large data warehouses are good environments for data mining. Such warehouses provide multidimensional indicators of business problems, facilitating the understanding of cause and effect. "We see data mining as the next step for data warehousing," says Anand. +



Suppliers of lower-end data mining tools are more concerned with usability than with probing humongous data volumes.

Another way vendors are expanding the usability of data mining products is by jumping on the 'Net bandwagon.

continued from pg. 12

covery task could be represented as simple parameters in a DBMS engine, data mining would be more commercial.

While high-end suppliers try to get data mining processes to work in parallel across many processors in large databases, suppliers of lower-end tools are concerned with usability more than probing humongous data volumes.

For instance, SAS Institute Inc., in Cary, N.C., is bringing the power of data mining to even the most unsophisticated users. Its client/server data mining tool, Enterprise Mining, which works with its Orlando 2 data warehouse suite, is about to go into beta. Enterprise Mining will let marketing and sales staffs create statistical analysis models. Built with a GUI, the product includes tools that walk users through the model-building process so that those with little model-building background can take advantage of data mining systems.

DataMind is confronting the usability issue with an architecture that consists of two components: DataCruncher for server-side data mining and Professional Edition for client-side specification and viewing of results.

Users deploy Professional Edition as a Microsoft Excel spreadsheet add-in, giving them

an easy-to-use interface driven by icons, menus and wizards, with output displayed as graphs and spreadsheet reports.

Implementing Professional Edition "was simple," says user Brown at ADP. "No additional hardware was needed. You throw in a disk, push a button and away you go."

NET FOCUS

Another way of making data mining more usable is by jumping on the 'Net bandwagon. The DecisionSuite set of relational OLAP tools from Information Advantage, a Minneapolis vendor of business analysis software, provides ad hoc analysis in a unified web/Windows environment to share reports across browsers and PCs. Another product, WebOLAP, allows an organization to put its data warehouse on an intranet and perform multidimensional OLAP analysis using web browsers.

IBM recently announced it would deliver Internet-based data mining through its net.Mining solution. This includes SurfAid, which helps businesses determine who is accessing their web sites, what they are looking for, and how to structure the sites to best meet users' needs. IBM has also announced Product Discovery and Customer Discovery, two web-enabled applications for its



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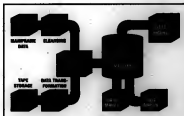
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Banks Use Data Mining Software *continued from pg. 6*

"mass customization to a segment of one" — being able to identify and target market to the ultimate customer. However, to do this, specific information about the characteristics of that ultimate customer is required.

Data mining tools provide Mellon Bank with the means of obtaining such information. The bank has run IBM's Intelligent Miner data mining software on the RS/6000 platform under AIX, and is now piloting the software on an S/390, with plans to run it on an RS/6000 SP2 in a parallel computing environment later this year.

The bank's pilot data mining project employed Intelligent Miner in an information discovery process in the Retail Bank marketing department. The main purpose was to determine the propensity of a current Mellon customer to purchase a specific additional product: the Home Equity Line of Credit. The tool yielded models that performed well in testing.

According to a bank official, "Intelligent Miner allows the user to produce high-quality business intelligence, such as association, classification or regression analysis, upon which target marketing can be conducted to customers determined to have a high propensity to purchase the bank's products and services."

A high level of quality information was being returned for analysis and decision-making processes, according to the official, who attributed that to the product's algorithms. The official also gave high marks to Intelligent Miner's ability to be customized.

But the official suggested that the product's GUI front-end should be modified to make it easier for the average business analyst to use. Tighter integration with data preprocessing tools, such as SAS programs, would ensure "a high standard of data integrity" in the data mining process, he added.

COMPUTERWORLD CUSTOM PUBLICATIONS

This White Paper on data mining was created by Computerworld Custom Publications. Questions or comments on the main story should be forwarded to managing editor Peter Buchner at (800) 820-8288 or peter_buchner@cw.com.

OW Custom Publications has also recently published White Papers on the related subjects of data marts (11/96), Universal Servers (7/96) and data warehouses (1/96). For reprints of the current White Paper or these previous ones, contact Jodie Brundley at (800) 820-8638 or at jbrundley@cw.com.

Intelligent Miner data mining toolkit. Intelligent Miner is a collection of algorithms that lets users extract, analyze and validate information from data in both flat files and databases.

COMPLEX ARRANGEMENTS

Many firms are turning to acquisitions and technology partnerships to enter the data mining arena. Sometimes these arrangements are highly complex. For instance, when Tandem entered the data mining arena, it partnered with five firms: Angoss Software Interna-

tional, Data Distilleries, Magnify Inc., NeoVista and Sylogic.

In 1996 Cognos Corp., a vendor of data analysis and reporting tools in Burlington, Mass., acquired Right Information Systems, Newburyport, Mass., for its high-end OLAP technology. In February, Cognos unveiled its Scenario desktop data mining software based on technology it had licensed from Angoss. A second release will incorporate neural network modeling and forecasting technology that Cognos acquired from yet another company. +

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The Enterprise Network

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Briefs

Microsoft's cost-cutting helps users

► New wizards simplify troubleshooting

By Laura DiDie

A MICROSOFT CORP. strategy to cut its support costs by letting users solve their own problems using electronic means is paying off for users.

In March, the company began rolling out a series of Troubleshooting Wizards on its World Wide Web site.

The wizards are the latest in a series of self-serve troubleshooting utilities Microsoft has built for many of its products.

SAVE YOUR DIME

The wizards — 27 in all — are free software tutorials designed to help users fix minor problems without calling Microsoft technical support. Such calls can cost users \$150 or more and strain Microsoft's support organization. Large organizations can use the wizards to quickly solve routine glitches and common network configuration or interoperability problems, Microsoft officials said.

The company also has broad-

ened the scope of its online technical support, called KnowledgeBase, to let users file incident reports online. Most Microsoft online support requires payment by credit card or bills to an existing account.

Automated and self-help support have become common among server vendors, according to Bob Sakakeeny, an analyst at Aberdeen Group, Inc. in Boston. Sun Microsystems, Inc. Solaris servers that run Oracle Corp. databases come with an option to "phone home" automatically to support centers that supply online databases similar to Microsoft's, he said.

Cost-cutting, page 55



Microsoft's Troubleshooting Wizards cut Windows NT installation time by one-third

INTERNETWORKING Road maps don't ensure vendors won't lose way

By Bob Wallace

USERS SAY internetworking technology road maps are often vague and rarely useful, but they still shy away from vendors that can't at least lay out a plan for the future.

"It's important for a vendor to have a clear road map for developing products that all [its] divisions agree on. But some plans are nothing but grandiose ideas, and 90% of the content ends up not interesting me," said Jerry

Sobieski, parallel systems manager at the University of Maryland's Institute for Advanced Computer Studies in College Park.

Sobieski — who used to lay out road maps himself as a technical support representative at Unisys Corp. — acknowledged that vendor plans were designed more to help vendors coordinate product development and marketing than to help users plan for the future of their networks.

The best vendor plans ensure all divisions in a company are headed in the same direction so users won't get stuck with a series of products that don't interoperate, said Jim Hutchinson, network manager at Children's Hospital in Boston.

Road maps, page 53

Playing Domino

► Notes vs. Web still a political battle

By Barb Cole-Gomolski

IT STAFFERS who push Lotus Development Corp.'s Domino as a Web server are finding themselves in hot debates with colleagues who favor purer World Wide Web offerings.

Although product politics aren't uncommon in information technology shops, the introduction of Domino pins the ever-loyal Lotus fans against Web purists who view Domino as a proprietary server.

"We have an Internet group here that will lambaste [Domino] at any chance," said John Sinclair, manager of electronic commerce for the consumer products group at Bristol-Myers Squibb Co. in Stamford, Conn. The pharmaceutical giant has about 10,000 Lotus Notes users and is migrating to Domino 4.5, which includes built-in Web server capabilities, Sinclair said.

Improving Domino's access to documents stored in relational databases would improve its chances of beating out Netscape Communications Corp.'s SuiteSpot and Microsoft Corp.'s Internet Information Server (IIS) as a Web server.

Some Web purists scoff at Domino because they believe its connection with Notes makes it too proprietary. Not so, say the Domino diehards.

They say Domino is as open as any IF-compatible server and stronger in security and replication.

Whereas traditional Web servers offer up Hypertext Transport Protocol (HTTP) data, Domino translates data on-the-fly from a

Proprietary Domino, page 53



Some developers prefer to work with products they believe are challenging

Report tool shows big WAN picture

By Patrick Dryden

VENDORS of network performance monitoring tools are trying to let managers of wide-area networks see the WAN forest instead of the trees.

The goal is to give business managers a broad view of the network and let them verify service levels, monitor overall WAN delivery and plan capacity needs, all from browsers on the corporate intranet.

Network managers said timely reports can help them slash WAN costs 20% to 50% by revealing actual traffic performance. They are over- or underutilized and whether carriers deliver on promised service levels.

"We can focus on individual frame-relay circuits between 135 sites, but we don't have a global picture of the whole network," said Roger Hall, data communications operations manager at

Mail view, page 57

WAN OVERVIEW

The three phases of WAN Overview plan to collect comprehensive reports on WAN performance

- 1. Select a WAN Overview report
- 2. Review per line and port
- 3. Configuration per circuit
- 4. Traffic load analysis
- 5. Capacity per port and circuit
- 6. Performance per circuit
- 7. Service level delivery map per circuit
- 8. Availability per line, port and circuit
- 9. Quality assessment

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Respondents: Information Systems Managers, Managers, Users

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Road maps don't ensure vendors won't lose way

CONTINUED FROM PAGE S1

Even when they are coordinated, road maps play a small role in Sobieski's buying decisions. "I choose a vendor not so much on what they say they're going to do, but more on their performance over the last several years," he said. "Have they lived up to my expectations?"

But vendors can risk losing business by operating without a vision or by failing to share it with users.

VISION QUEST

"We've decided against a vendor in part because they didn't have a direction or vision," said Tom Stenson, vice president of network architecture and planning at State Street Bank and Trust Co. in Boston.

"I realize that things move so quickly in the industry today that it's probably impossible to have anything beyond a two-year road map, but vendors still need to articulate a plan," Stenson said.

Plans that are long on vision and short on product specifics, however, leave Hutchinson unworried. "I listen to their talk and then ask, 'What products are you going to use to fulfill this architecture?'" he said. "You have to take these with a grain of salt."

One shortcoming of vendor direction plans is that they rarely address the needs of users who buy from several vendors, according to Alan Robson, director of network systems at Cox Target Media in Largo, Fla.

"It's important for these direction statements to lay out what the technology will or won't do when used with other vendors' products," Robson said.

But having an early voice in the direction of development is the best way to en-



State Street Bank's Tom Stenson said some vendors' lack of a direction or vision has contributed to the bank not doing business with them.

sure plans go your way, said Robson and Hutchinson, both of whom joined vendor technical advisory committees to make sure they have input.

"It's great to have access to the people who are actually planning and developing products," Hutchinson said.

"It's your job to learn as much about your suppliers' plans as possible," Hutchinson said. "And this is one solid way to do it." □

'Proprietary' Domino makes Web purists chafe

CONTINUED FROM PAGE S1

Notes format to HTTP. Domino also has many features not found in other Web servers, such as time-tested messaging, calendaring, scheduling and replication.

Denver-based US West Communications, Inc. recently decided to center several mission-critical Web applications around Domino — a decision that hasn't always been popular with IT staffers.

"Some developers prefer to work with the products they feel are more challenging, such as the newer [Web] servers,"

several IT staffers are interested in Exchange and Microsoft's IIS, said Kornak, who had to locate a spare server on his own to get Domino up and running at the site.

The advantage of using Domino for the publishing application is that the data already exists in Notes, Kornak said.

There are definitely Notes and Internet camps, said Angela Finney, product marketing manager at Lotus. But she added that she sees the two groups coming together.

The Cambridge, Mass.-based company will try to encourage debate by making its application development tools for Domino more similar to popular Web tools.

In fact, Lotus last week announced Lotus Go Pro, a stripped-down Web server that supports HTTP natively but lacks other Notes baggage such as messaging and threaded discussion forums. It will ship this summer.

Domino seems to be holding its own in the Web arena. Creative Networks, Inc., a market research firm in Palo Alto, Calif., recently published a survey of 50 IT professionals that showed 17% of companies use Domino within their corporate intranets. □

"We have an Internet group here that will lambaste [Domino] at any chance."

— John Sinclair, Bristol-Myers Squibb

said Motti Goldberg, chief architect at US West. Domino's strong application development environment, as well as the telecommunications giant's army of experienced Notes developers, helped IS executives choose Domino.

Adam Kornak, a Domino consultant in the Chicago area, is helping another large telecommunications company expose some existing Notes databases to the Web using Domino.

"This is very political because the company is Microsoft-oriented," he said. Sev-

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Cost-cutting saves users support costs

CONTINUED FROM PAGE 51

Troubleshooting Wizards save time and money for users who don't have Windows NT specialists on hand at all times, said Paul Soares, vice president and general manager of Alden Buick Pontiac, a General Motors Corp. car dealership in Fairhaven, Mass.

Alden is one of 8,500 GM dealers nationwide that use the Troubleshooting Wizards to smooth a migration to Windows NT. "The wizards got our Windows NT workstations up and running on the network in about 30 minutes. Without the wizards, it took us 90 minutes," Soares said.

He estimated that the wizards will save the dealership between \$2,000 and \$3,500 per year in telephone support costs.

INFERRED TROUBLE

The Troubleshooting Wizards resemble agents in Windows 95 that solve simple use and interoperability problems, but the wizards are based on a new intelligence engine that chooses the most likely reason for user problems.

Users who click on the Help option are directed to the wizards, which pose questions aimed at identifying the problem and the fix.

Britt Mayo, director of information technologies at Perot Systems Co. in Houston, said the combination of the Troubleshooting Wizards and the online support information has been an "immense help," especially with things that go bump in the night.

"They're handy when we need detailed information on a problem at 3 on Saturday morning when it's not easy to get the right support person. The wizards also give us an idea of whether or not a prob-

The diagnostician is in

Microsoft's new Windows Application Troubleshooting Wizard is the prototype for many Troubleshooting Wizards that will use diagnostic routines to help users solve problems.

The Windows wizard goes beyond asking users a series of questions; it also prompts them to check whether or not they want to use network diagnostics. If so, the utility will perform tests and attempt to correct the most common network errors that would prohibit successful installation of a multimedia application.

Microsoft's next step will be to release Troubleshooting Wizards later this year that fix users' type to the symptoms of a problem. The wizards will then select the appropriate troubleshooting.

Users can learn about and access the Windows wizard for free at Microsoft's Web site at www.microsoft.com/support/technical/troubleshooting.htm.

—Laura D'Amico

lem is peculiar to us or an industrywide glitch," Mayo said.

Nine times out of 10, Jeff Dazell turns to the wizards and KnowledgeBase before calling phone support because they provide more information than the first Microsoft technician who picks up a support call, he said. Dazell is LAN administrator for corporate support at Dana Corp., a \$7 billion auto-parts manufacturer in Toledo, Ohio.

The free support has even made money for the Electronic Brokerage Division of Charles Schwab & Co. in San Francisco, according to Mike Sidell, senior manager of business systems. The best phone support for his 11,000 users typically takes 20 to 30 minutes to solve a problem, so whereas staffers can fix most problems in 10 minutes with electronic support. "Time is money in the brokerage business. If our users can access a database or server for even 15 minutes, we lose tens of thousands of dollars," Sidell said. □

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NEW PRODUCTS

BLUE WATER SYSTEM, INC. has announced NT Developer's Power Pack, a package of Windows NT device driver development tools for C++ developers.

According to the Edmonds, Wash., company, the package includes a driver development wizard for automatic creation of thousands of lines of source code and debugging extensions.

Pricing for NT Developer's Power Pack starts at \$10,900.

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WIRELESS SYSTEMS INC. has announced Version 3.0 of Great Circle for Windows

95, Windows NT and Sun Solaris 2. The software automatically eliminates memory errors from C and C++ programs.

According to the Chicago company, Great Circle is a Dynamic Link Library that uses garbage-collection technology to analyze and manage an executable program's memory during runtime. The latest version includes a graphical user interface that tracks memory savings and leaked memory and decreases program memory requirements by up to half. Pricing starts at \$695.

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Madge software can eye both ATM and Ethernet

By Patrick Dryden

MADGE NETWORKS, INC. last week introduced a version of its monitoring software that can analyze both Ethernet and ATM traffic.

The software has the unique ability to view frames within Ethernet connections and cells within Asynchronous Transfer Mode (ATM) circuits.

A version due later this year also will handle Token Ring traffic.

Analysts said that can help users of Madge switches in two ways. First, it will let Madge users for the first time easily control and troubleshoot ATM usage.

It also will help ease their migration from current networks to a faster technology better suited to multimedia communications.

FEW ATM TOOLS

Few organizations have really embraced ATM networks, analysts say, partly because managers lack tools to analyze cell-based conversations switched at high speed across a network.

"Right now, we can only see some basic statistics for individual ATM circuits, but we really need to examine overall per-

formance in order to adjust capacity," said Candy Rivelli, information systems coordinator for the city of Bettendorf, Iowa. Currently, 150 users at seven city offices rely on a Madge ATM network for voice, videoconferencing and applications that include transfer of files up to 50M bytes in size.

"We must see how these loads are balanced to ensure adequate capacity," Rivelli said.

NETWORK MANAGEMENT

Madge, in San Jose, Calif., next month will ship the double-duty version of its Switch Monitoring (Smmon) software. Called SmmonMaster, the tool is part of Madge's Montage management suite. It will cost \$11,500.

"It's absolutely vital for Madge users who want to use ATM for more than data," said Jim Metzler, director of consulting services at Strategic Networks Consulting, Inc. in Rockland, Mass.

Madge lacks ATM's "mind share and market share," Metzler noted, but its "cool Smmon technology" complements an emerging standard for ATM monitoring.

Smmon also has been proposed as an extension to the Remote Monitoring method for tracking network activity, he said. □

WAN view

CONTINUED FROM PAGE 51

What First Butcher Singer in Richmond, Va.

Visual Networks, Inc. will start remedying that situation in June by adding broader reports — accessible via World Wide Web browsers — designed for information systems executives instead of technicians.

The brotherage and about 140 other organizations use the Visual UpTime WAN interface from Visual Networks to monitor traffic flow through individual frame-relay circuits and other links.

The upcoming Executive Reporting Package should help profile the full impact of new applications, Internet access and added SNA traffic, Hall said.

VENOR HAV'N ALONE

Other vendors are working on a broader vision of the network. Visual Networks in Rockville, Md., last week introduced a series of enhanced reporting options that will ship this year. ADC Kentrox in Portland, Ore., next week will announce plans to monitor frame-relay WAN performance through a partnership with Kaspia Systems, Inc. in Beaverton, Ore. Concord Communications, Inc. in Marlboro, Mass., recently launched a WAN version of its monitoring software.

Direct Web access to the new reports will eliminate the hassle of printing per-

formance data for network planners and other officials, Hall said. But he said he will have to properly configure access controls to ensure that outsiders on the Internet won't be able to view details about the vital trading network.

Visual UpTime consists of a WAN interface unit for each site. The units contain agent software for analyzing protocols, packets and performance. Prices start at \$1,195 each — about \$400 more than a standard interface.

Each unit reports to a central console, which costs \$11,995, including the supporting Windows PC. The high-level report package with Web server costs \$9,995.

ADC Kentrox is catching up in monitoring capability. For the first time, users of its FrameVision WAN interfaces will be able to track the performance of frame-relay circuits.

ADC Kentrox will integrate Kaspia's Automated Network Monitoring System software with its hardware to enable real-time analysis from browsers. Kaspia's software starts at \$5,000 and requires a high-powered Windows NT workstation.

Similar WAN performance monitoring is possible without any vendor's special hardware. Concord Communications offers a software-only monitor called Network Health.

The Unix-based console costs \$6,000, and an add-on module for analyzing frame-relay performance costs \$5,000, plus \$350 per circuit. □

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Briefs

Web makes hospital 'net work

► Pilot-test site links disparate legacy data

By Thomas Hoffman

AFTER MERGING to save off cost-elching health maintenance organizations, many hospitals spend years and millions of dollars getting their clinical databases under one roof.

But a new partnership between Boston's Beth Israel and Deaconess hospitals is on the path to a low-cost cure for that malady. The two institutions, which merged last October to form CareGroup, have spent the past six months and less than \$50,000 creating CareWeb, a World Wide Web-based common medical record source.

CareWeb is still a pilot project

that hasn't been board-approved. It currently provides read-only access to sample patient data (www.bethisrael.com/careweb.htm).

HIGH HOPES

But CareGroup executives and end users are optimistic that the two institutions may soon share disparate legacy data in a secured environment.

"There's still a lot of work to be done, like proving that the technology itself is stable," said Dr. Charles Safran, director of informatics and advanced technology at Beth Israel. But the barriers aren't overwhelm-



Dr. Charles Safran, director of informatics and advanced technology at Beth Israel. "People told me... this project wasn't possible."

ing, he said.

Having easy access to background information on patients would smooth the admissions process, said Mary Alessi, an admissions clerk at Deaconess Glover Hospital in Needham, Mass. That information is currently stored in proprietary systems at separate facilities, she said.

To ensure the confidentiality of patient data, the hospitals will change user passwords every 60 seconds. As such, CareGroup's 5,500 end users will have to use hardware "tokens"

Hospitals, page 60

E-COMMERCE

Firms: Open the store, lock the safe

By Mick Wagner

WHEN Federal Express Corp. went live with its Internet commerce site, it almost gave away the keys to the kingdom.

Developers were testing a proposed new feature of the company's World Wide Web site (www.fedex.com) that would automatically locate the closest lockbox for customers who wanted to drop off packages for delivery.

The feature was designed to let users input their locations and automatically query an internal database of FedEx lockboxes to find the closest one.

"We were seeing a lot of strange numbers coming up with the address. We couldn't figure out what it was," said Paul King, a senior marketing specialist for electronic commerce at FedEx in Memphis. "Then we realized — some of our staff were putting the combinations to the lockboxes in the database, which was OK at the time because nobody outside the company was supposed to see it. But that had to change when we were putting the information up on the Internet."

Despite the risks, FedEx and Open the store, page 60

Business on the Web is hitting the mainstream

► Technology, cost bring more companies online

By Mick Wagner

ATLANTA

THOSE ATTENDING Internet Commerce Expo here earlier this month said they have noted a sea change in user attitudes toward electronic commerce compared with last year.

Users at Internet trade shows last year were trying to figure out whether to get involved with Internet commerce. Now, they have made the commitment, although they still aren't sure what shape their electronic-commerce efforts will take.

"Internet commerce is coming down to the level where everyone can play," said Richard Kramer, manager of information systems at Want Ad Publications, Inc. in Sudbury, Mass.

Internet systems are becoming so prevalent — and sophisticated technology is becoming so inexpensive — most companies can afford to at least experiment with electronic commerce, Kramer said.



Source: Strategic Information Group, Boston.

The boom in Internet commerce is mostly a matter of critical mass, users said. As more companies go online, their competitors, vendors and business partners see the need to go online as well.

Meanwhile, promotional efforts from America Online, Inc. and computer and telephone companies are luring ordinary people online, which makes the Internet more mainstream.

CROWD REACTION

"It's taking off, if for no other reason than herd mentality. Everyone is doing it," said Dan Dunay, director of the new technologies group at Maritz Performance Improvement Co., a human resources consultancy in Fenton, Mo.

But users cautioned that electronic-commerce advocates shouldn't feel overly heartened by the enthusiastic response from attendees at electronic-commerce trade shows.

"It's an quieter situation here. The people on the show floor want it to happen, but the senior managers haven't come around," said Mark Rhoney, director of strategic marketing at United Parcel Service of America, Inc. in Atlanta.

He said senior managers tend to be more cautious.

Web business, page 60

1996	\$22.4M
1997	\$53.3M*
1998	\$226.6M*
1999	\$1.05B*

Open the store, but lock the safe

CONTINUED FROM PAGE 38

other companies are finding it essential to build links between back-office systems — mainly legacy databases — and the Internet. The links give customers and business partners access to accounts and services.

"The more you can empower your customer, the better business relationship you can have with your customer," said Chris Pizey, webmaster at Universal Press Syndicate in Kansas City, Mo. "When it comes time to decide who they'll buy from or do business with, all that sort of thing goes into the mix. It helps make the sale easier."

Universal Press Syndicate is building a system to provide customer-service information on the Internet so its retail book distributors can check the status of shipments and accounts-receivable information.

Other companies also are making private information public to gain a competitive edge. Marriott International, Inc. in Bethesda, Md., provides access to its reservations system

to let customers reserve rooms and change frequent-traveler information.

Kansas City Power & Light Co. in Kansas City, Mo., lets customers access electrical-usage history information on a Unix database that has a dynamic online bill payment.

Sensible security measures can make exposing internal data on the Internet relatively safe

Security is a major concern for those applications, but it isn't a reason to stay offline. Sensible security measures can make exposing internal data on the Internet relatively safe, information systems managers said.

Encryption and firewalls are only a starting point. Marriott and Kansas City Power & Light shelter legacy systems from the Internet by allowing access only

at "mirror" sites — servers outside the firewall that contain duplicates of the data stored on internal sites.

"It's like having a lock on your door," said Ray Pasley, supervisor of network services at Kansas City Power & Light. "There's always someone out there who can break locks. But still, you need to take the precautions." Ultimately, the risk of being off-line outweighs the risk of being online, because customers are increasingly demanding online access to data and will take their business to companies that have a dynamic online presence, Pasley said.

Obstacles to putting internal data online come from the so-called owners of the data and the applications housing the data. Reservations and accounting systems managers, for example, need to be convinced that it is good for the company — and good for them — to allow Internet access to their systems.

"It's their jobs to be gatekeepers, and they have legitimate concerns," said Bill Schallenberg, Web publisher at Marriott.

Internet advocates need to demonstrate that internal corporate data can be updated over the Internet in a safe, reliable fashion, and faster and easier than by other means.

How do you do that? "Meetings," Schallenberg said. "Lots and lots of meetings." □

Hospitals use Web to link databases cheaply

CONTINUED FROM PAGE 38

to access the system.

CarWeb already has vaulted other hurdles. Many of Beth Israel's information systems staffers, for example, didn't think its legacy data could be Web-enabled because 38,000 of the hospital's computer programs were written in Mumps, a closed development language and database, said Dr. John Halama, a postdoctoral fellow at Beth Israel.

NO MORE MUMPS

Fortunately for Halama, Beth Israel's Center for Clinical Computing was migrating from Mumps-based software to the Open M database from Cambridge, Mass.-based InterSystems Corp. Open M takes an ANSI-standard version of Mumps and ports it to a standard operating system such as Unix or Windows NT.

Using InterSystems' Visual M development tools and Microsoft Corp.'s Visual Basic to build the Web site, Halama could present a single view of data in Beth Israel's Open M and Decosent's Sybase, Inc. systems by late December.

That feat made his mentor, Safraan, proud — and a little bit richer.

Beth Israel Hospital has more than 1 million computerized patient records, and Decosent Hospital has more than 100,000 patient records.

"I bet our colleagues at other hospitals one dollar that we would succeed at bringing this up by the end of 1996," said Safraan, a physician who also teaches at Harvard Medical School. "I won the bet."

HELP FROM NEW ZEALAND

But not without a little luck. The underlying communications standards that hospitals rely on to share data is called HL7 EDI for Healthcare. It could have taken Halama months to create a component that could disassemble HL7 messages from the two hospital environments.

Instead, he found an HL7-specific ActiveX messaging system called Symphonica — from a tiny New Zealand-based outfit called Orion (www.orion.co.nz) — that could do it for him.

"I'm a technology opportunist," Halama said. "If I've got something that has a component worth using, drop it in." □

NEW PRODUCTS

VIDEOVIEW, INC. has announced Video Toolkit 3.0, a desktop video editing package that was designed for use on the Internet.

According to the Campbell, Calif., company, the tool lets a user link and control up to seven source and post-production devices through one computer serial port. Users can create Hypertext Markup Language documents for the World Wide Web so users can send video news broadcasts and other work via Internet sites without having to reformat data.

The tool kit costs \$395.

VideoView

(408) 846-3900

www.videoview.com

ONDISPLAY has announced CenterStage, a software package that helps users access World Wide Web sites and extract and categorize data for integration with business applications.

According to the San Ramon, Calif., company, the software uses OnDisplay's PageAgent technology to transform Hypertext Markup Language into more useful information that corporations can integrate and share with their partners, customers and suppliers.

Pricing starts at \$395 for a desktop version and \$4,995 for a Windows NT server version.

OnDisplay

(916) 397-3400

www.ondisplay.com

PRECIPITY SOFTWARE, INC. has announced StreamWatch software for determining accurate demographics on Internet users and the Internet.

According to the Palo Alto, Calif., company, the software helps business and network managers uncover usage patterns on audio and video applications. The program is Windows-based and tracks

multicaused multimedia data streams that use the Real-time Transport Protocol standard.

StreamWatch costs \$995.

Precipity Software

(415) 449-3300

www.precipity.com

FRACAL DESIGN CORP. has announced Fractal Design Power 3 for Windows, three-dimensional modeling and rendering software that creates human figures for use in animation.

The animation can be saved as Apple Computer, Inc. QuickTime movies for use on the World Wide Web.

According to the Scotts Valley, Calif., company, the upgrade adds animation and the ability to add props and substitute 3-D models for body parts.

Fractal Design Power 3 for Windows costs \$495.

Fractal Design

(800) 546-0711

www.fractal.com

Business on the Web is hitting the mainstream

CONTINUED FROM PAGE 38

to be 35 to 55 years old, and only 40% of that population even uses computers.

Much of the driving force behind electronic commerce comes from the consumer sector, said users at the expo.

"Contrary to popular opinion, consumers are accepting the Internet faster than business," said William S. Finklestein, vice president and manager of the direct distribution group at Wells Fargo & Co. in San Francisco.

His view runs contrary to the conventional wisdom from industry analysts. For example, Framingham, Mass.-based In-

ternational Data Corp. recently conducted a survey that found that two-thirds of respondents didn't plan to buy goods online and that three-quarters of respondents didn't plan to buy services online.

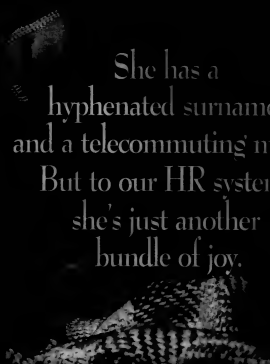
And that poll was conducted online, where people are, presumably, more Internet-savvy.

But Finklestein said some consumers may be more quick to buy online than some business users, if only because they can experiment online without having to first convince a senior management team that it is a good idea. □



Technology

Product
Features



She has a
hyphenated surname,
and a telecommuting mom.
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ADP

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Briefs

Industry round on ERM

The Securities Industry Association, a New York-based group of more than 700 securities firms, last formed a committee to coordinate against implementation changes for the year 2000 problem. Arthur Plesner, senior vice president and director of global operations services at Merrill Lynch & Co. in New York, led chair the committee.

IS may push E-ling

A panel studying the recent Internet fiasco may recommend that IS leaders use resources to find alternatives while awaiting the Federal Commission on e-commerce. The panel said last week it may include e-commerce in its guidelines for July 2000. In Congress, electronic commerce is moving away from about 10% to less than 1% and e-commerce is not, the committee said.

New group targets IS

The National Information Systems Association (NISA) recently formed a new membership organization targeted at large state and business with NISA's focus on education, training, and research. NISA is the third-largest membership group in the U.S. The new group is NISA/IS, headed by NISA's president, John W. Hines, and NISA's vice president, John W. Hines. NISA is the third-largest membership group in the U.S.

Who initiates IS projects?



Based: 100 member companies at large companies
Source: A. H. Hines, Inc., Chicago

Client/server upgrade

Unifying a legacy mix

By Randy Weston

AT STEEL and plastics maker Worthington Industries, Inc., an upgrade in financial software systems signals an effort to improve cash flow. But the three-year project also means overcoming the challenge of moving from a weed field of homegrown mainframe programs to a single client/server application.

The Columbus, Ohio-based company is in the midst of a migration from homegrown, decentralized mainframe systems that run independently at 22 locations to a centralized client/

server financial software system that runs on a single Unix-based HP 9000 server at headquarters. The key software is SmartStream from Geac Computer Corp. in Atlanta.

When the project is complete, controllers at the various locations will be able to feed financial information into the central server while still being able to analyze the information locally.

"One of our primary objectives was to create [monthly accounting] closing information on demand," said project leader John Kralick. "We were used to taking five to six days to close client/server, page 66



Worthington Industries' John Kralick wants to reduce time for closing books from six days to one.

IS firm looks beyond tech skills

By Julia King

AS A SYSTEMS integrator, Align Solutions Corp. seeks IS professionals who are fluent in client/server applications and the Internet. But along with the technologists, the Houston-based start-up is looking for people who know about writing, graphic arts, public relations and advertising.

The idea is to cross-pollinate the various skill sets, which Align's founders — and



SourceNet customers can make purchases using an Align Solutions-designed GUI.

its customers — view as critical to producing multimedia appli-

cations that appeal to customers. Those include interactive kiosks, World Wide Web-based electronic catalogs and multimedia sales presentations.

Align's customers said this hiring strategy gives them access to skills that will help them reach broad audiences.

"What technically brilliant people can generate is something that other technically brilliant people can use and un-

Technical skills, page 68

CD-ROMs and Web publishing cut costs, speed access

By Lisa Picarille

HARDWARE WHOLESALES, Inc. has 3,500 member retailers in the U.S. that need to receive updated pricing and information on 65,000 products and supplies. The Fort Wayne, Ind., hardware and building-materials supplier distributed microfiche to its retailers with product data to guide their supply orders — until last year.

That was when Hardware Wholesalers began distributing its information on CD-ROMs for PC users.

The move to publish information electronically — whether as a CD-ROM, an intranet application shared with employees and business partners or a public World Wide Web site — is a typical strategy to cut costs and speed information delivery. No matter what the industry, every business ultimately runs on information, so every company's second business is publishing.

According to a recent study by consulting firm Deloitte & Touche, corporations spend 12% to 15% of their revenue on publishing-related activities for both internal and external delivery.

Businesses use electronic publishing to deliver training CD-ROMs, page 66

Incentive-based contracts move into government work

By Sharon Macklin

THE U.S. SENATE this month received a refund of more than \$250,000 from a computer services firm — even though the vendor had fulfilled all its contract provisions and Senate officials say they are satisfied with the service.

That's because the contract was a "gain-share" pact, where savings from increased produc-

tivity, better tools and the like were split about evenly between the Senate and its vendor, Wang/1-NET Government Services in McLean, Va.

"I am overjoyed to hear about this," said Steven Kelman, administrator of the Office of Federal Procurement Policy in Washington and a proponent of the concept.

Such contracts have been slow to catch on in the public

SENATE GAIN-SHARING CONTRACT BENEFITS

- Paperwork cut from more than 250 invoices per year to 12 invoices
- Help-desk performance goals instituted, including two-hour target for fixing network problems
- \$230,000 refund for improved productivity

sector — particularly at the federal level — because of legal questions and a long history with more conventional fee-based deals. "In the past six months, we've begun to see a concerted push to familiarize [information technology] buyers

in the federal government with gain-sharing," Kelman said. He said he hopes such agreements will become commonplace within five years.

Some experts caution that although these pacts hold the promise of savings, they also have risks. Contracts, page 68

with data located behind a variety of different operating systems—NIX, MVS. The key thing trying to do is pool that data from all sources and create a single view out of it. We researched the market a great deal to help create this new information.

Phil Olson, Director of Centralized Operations, Enbridge Corporation

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...together
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CD-ROMs and Web publishing cut costs

CONTINUED FROM PAGE 63

manuals, health and benefits booklets, product lists, corporate policies and price lists.

At Hardware Wholesalers, the change from microfiche to CD-ROM has been well-received — both inside and with

business partners.

"Now with the CD-ROM, users can search, print information and even order products. Having an updated catalog is a very important element because we are in the wholesale environment," said Kay

Williams, publications manager at Hardware Wholesalers.

Williams added that the CD-ROMs include instructional videos, information on vendors and special ordering information. "If we had that amount of information available on paper or microfiche, our costs would quadruple," Williams said.

However, until all of Hardware Wholesalers' customers start to use the CD-ROM catalog, the company still has to produce a microfiche version for two more years. Williams said eliminating it will save \$450,000 per year.

Dataware Technologies, Inc., a developer of electronic publishing software in Cambridge, Mass., estimates it costs \$550 to deliver 1M byte of information on paper vs. about a quarter of a cent on a CD-ROM. There are an estimated 117 million computers equipped with CD-ROMs in the U.S.

A CD-ROM, which holds the equivalent of 200,000 pages of paper, costs between 70 cents and \$1.20 to produce. The cost of publishing on paper ranges from 1 cent to 4 cents per page.

Although electronic publishing often reduces back-end costs, there are upfront expenses associated with publishing online, such as special hardware and software, hiring a person with online pro-

gramming skills to post information and maintenance of servers.

But one user said the benefits and eventual savings far outweigh initial costs. This user publishes documents both on an intranet and a Web site.

"We are required by law to publish certain information about the handling and hazardous nature of chemicals," said a systems team leader at a large East Coast chemical company, who asked not to be named.

ELECTRONIC PUBLISHING BENEFITS

- Provides up-to-date information that is instantly accessible
- Lowers paper costs
- Eases communication with customers and business partners

gramming skills to post information and maintenance of servers. But one user said the benefits and eventual savings far outweigh initial costs. This user publishes documents both on an intranet and a Web site. "We are required by law to publish certain information about the handling and hazardous nature of chemicals," said a systems team leader at a large East Coast chemical company, who asked not to be named.

Get your career back up to speed.

Client/server unifies a legacy mix

CONTINUED FROM PAGE 62

the books," Krulick said he wants to cut that to one day with the new system. But he acknowledged it will take time to get users up to speed.

The \$2 billion Worthington already has eight sites online, and it will buy the remaining 14 at a rate of about one per month for the next year. Each site handles about 570 million of Worthington's cash flow.

HARD AT WORK

Krulick, a certified public accountant and controller by trade, was joined by six other full-time workers for the project. Most were business department people who would eventually return to their jobs as end users of the new software system. The information systems department was on standby to help with the technical aspects of software implementation and hardware configuration.

But Krulick said he hit a snag when three key members of his team were promoted out of the project — almost all at the same time. It set the three-year project back about four months while his team's new recruits received the needed training.

"One thing I would have charged is to have a better contingency plan," he said. "I would have made sure from the beginning that the staff would be left in

place for the duration."

The setback cost a few thousand dollars. For the 120 eventual users of the system, the project is estimated to cost about \$300 per user, including software licensing with an extended 10-year maintenance contract from Geac. Original projections were about \$473 per user.

Worthington also lost time combing through years of piecemeal applications and custom code on the mainframes as well as reconciling extremely inefficient systems with the new system.

For example, James Lane, an Ernst & Young consultant who worked with Worthington on the project, said it took 1,000 hours to weed through a vendor master file on the decentralized mainframe system because of duplicate entries.

"It had 113 separate entries for AT&T alone because different people would enter it as 'A T T' or 'ATT' or 'A T and T,'" Lane said.

Lane said such findings are common in companies whose technology has grown up separately at individual sites. Reconciling such systems is often a large consumer of time on technology-migration projects.

Out so far, the time spent is paying off. With just a handful of sites online, Worthington is seeing controllers do weekly "soft closes" on its accounts. □

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Incentive contracts move into government

CONTINUED FROM PAGE A3

promise of cost savings, they can backfire if government contracting officials aren't savvy enough to negotiate them properly. The question is: Is a "refund" a good deal, or was the government simply paying too much in the first place — and not demanding enough from its vendors?

In addition, it could create a public uproar if a company that does business with the government received a large rebate payment, even though the company bore

the risk of slender profits if results had gone the other way, said Robert Dorman, senior vice president at Federal Sources, Inc. in McLean.

For now, federal officials are trying to ensure that appropriation laws for the executive branch explicitly allow "profit-sharing" contracts. (The Senate is covered under different legislation.) Some federal chief information officers have been searching for possible pilot pro-

grams. The Department of Energy, for example, has worked on a gain-share contract about to hit the streets for telecommunications integration, according to CIO Stephen H. Hall Jr.

The Senate contract provides installation and support services, including staffing a help desk that serves offices in Washington and all 50 states. About 350 LANs and 8,000 desktop computers are covered.

The contract, initially issued more than four years ago but recently revised, streamlined paperwork and instituted specific performance targets such as LANs being brought back up within two hours and a four-hour response to problems with a Washington-based computer. Profits above those specified in the pact were split between Wang and the Senate.

The idea was to bring the contract in line with what an innovative Fortune 100 firm might use, said Richard Zellman, general counsel to the Senate's Sergeant at Arms administrative branch. For the federal government, he said, "We think this is an innovative approach." □

IS looks beyond technical skills

CONTINUED FROM PAGE A3

derstand. But that's not your average population," said Walter Rogers, one of Align's customers. Rogers is president of CertiSource, Inc., also in Houston. Starting next month, CertiSource will offer a Web-based referral service for companies that seek certified software technicians.

Align aims to fill a need for a new breed of hybrid professionals — people who have a combination of technical and creative skills, can conceive innovative advertising and marketing ideas, and can help develop the information systems to bring them to life.

Rogers, for example, wanted an integrator to develop a Web-based electronic storefront for his new enterprise.

"A lot of the Web page has to do with marketing and selling, so we needed someone to take the concept, create a corporate identity for us and handle the whole thing," Rogers said.

Another customer, Houston-based SourceNet, which outsources corporate purchasing and accounts payable functions, needed an electronic catalog and order form that its clients could use to buy office supplies and other goods.

Both companies reviewed proposals from traditional systems integrators. But ultimately they hired Align, whose niche business is developing electronic commerce and document management applications whose primary users are non-technical consumers.

FOUNDING FATHERS

Align was founded in October by a small group of Houston-based design and marketing experts and several defectors from Andersen Consulting, Perot Systems Corp. and BSG Alliance/IT.

"We looked at the market and saw people building systems that go outside a company's walls, and we saw that there's

a different set of skills you need to do that," said Align Chairman Richard Scruggs, a former Perot executive.

"From day one, we decided to create a company that was a merger of technical and creative disciplines," he said.

Today, several of Align's 26 staffers are graphic designers or systems developers who are self-taught in multimedia skills. A few others are recent graduates of new digital design programs, such as the one at the University of Houston.

Other new employees include client/server specialists and database experts who, above all else, must be flexible and

team-oriented, Scruggs said.

"We're not looking for any Lone Rangers, because it's a mix of skills that's required for these applications," he explained. Scruggs said Align wants its client/server staff to understand how to communicate using multimedia and the Web, along with "people who know how to tell a story."

The idea is for people from both disciplines to learn for each other.

"I imagine if we fast-forward a year, we will have cross-pollinated enough that there will be some people who can wear multiple hats," Scruggs said. □

SHORTS

TradeWave sold

CyberGuard Corp. in Fort Lauderdale, Fla., has acquired TradeWave Corp. in Austin, Texas, in an effort to move into electronic commerce. CyberGuard sells its own firewall product and various third-party offerings. TradeWave, previously part of SunSoft Corp., provides digital certificate products for the electric utility industry. Its products are widely used by companies on that industry's nationwide Open Access Same-time Information System network. Terms of the deal weren't announced.

Texaco trading system

Texaco, Inc. has awarded MCI Systemhouse a \$5.1 million contract to implement and support a client/server-based commodities trading system. White Plains, N.Y.-based Systemhouse will use the data-tracking system to monitor pricing and other trading logistics for the crude oil and refined products it buys and sells around the world.

Bank outsources HR

Firstar Corp., a Milwaukee-based bank with \$19 billion in assets, has signed an outsourcing agreement with Fluor, Inc. in Brookfield, Wis., to run its human resources, payroll and benefits processing services. Terms of the agreement weren't disclosed.

Ex-SAP exec in launch

Guenther Moenchsch, former development director of logistics at SAP AG, is launching a new company to develop software for the supply-chain and production-management markets. Called POS Technologies LLC, the new Cambridge, Mass.-based company is a joint venture between Moenchsch's company Camelot IS-a International LLC and Genzym Corp., both also located in Cambridge.

Camelot IS-a is a consulting services with emphasis on the manufacturing industry and plant logistics. Genzym makes software for the industrial, scientific, commercial and government sectors. With POS, the companies are hoping to develop an application system for companies to execute supply-chain and production strategies. The delivery schedule for the new company's software hasn't been set.

Europeans fear decline

Europe's information and communications technology industry requires urgent attention to push it to the forefront of the global market, according to a report the European Commission released last week.

Since 1980, Europe's share of the global IT market has dropped from 35% to 28%. The commission report identifies high European labor costs as a handicap to IT growth but fails to recommend solutions to that problem.

Which database is the lifeblood of 15 of the top 16 US hospitals?

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► When SMP maxes out, several choices step in

By Jai Kumar Vijayan

SYMMETRICAL multiprocessors, most of which accommodate between two and 32 CPUs, can meet the huge demand for growth of a data warehouse. But try to scale beyond that — and many users need to — and symmetrical multiprocessing (SMP) performance gains become less dramatic and more costly.

Alternatives for higher performance and scalability include Non-Uniform Memory Access (NUMA) architectures, massively parallel processor (MPP) systems and clustering.

"What you need for a good, fast data warehouse machine is literally infinite processing power, infinite I/O capability and infinite memory," said Jonathan Bunice, president of Illuminata, Inc. in Nashua, N.H.

That might not be practical. But the choices available have advantages and disadvantages.

SMP

SMP servers let users tie multiple processors together and har-

Scaling up, page 74

DATA WAREHOUSE HARDWARE		
TECHNOLOGY	PROS	CONS
SMP	Data warehouse performance increases can be achieved by adding CPUs. Applications don't have to be specifically architected to run in this environment.	Operating system must be architected for multiprocessing. Memory bus bottleneck: Too many CPUs slow performance.
Clustering	Increased data warehouse performance with each node on a shared database. Fail-over capability for high availability.	Systems administration complexity grows with each node added. Database must be architected for shared clustering.
NUMA	Data warehouse performance increases can be achieved through a range of CPUs. Application will run unaltered in this environment (but will scale better if multithreaded and tuned to the architecture).	Operating system must be architected for NUMA. Largely untested in commercial environments.
MPP	Steady performance increases through very high node expansion. Single system view of all shared nodes.	Operating system, utilities, tools and applications must be architected for MPP. Very expensive.

BENCHMARKING

Industry divided over vendor-backed specs

By Thomas Hoffman

INDUSTRY-STANDARD benchmarks used to be brushed aside as transparent attempts by vendors to showcase system performance by optimizing their hardware and software to run at peak performance using artificial data.

But in data warehousing circles, benchmarking has become a rather contentious issue lately. Some industry gurus believe Transaction Processing Performance Council Benchmark D (TPC-D) should be extended from database querying to data warehousing. Meanwhile, Red Brick Systems, Inc. in Los

Gatos, Calif., is pushing its own specifications specifically for data warehousing, data marts and online analytical processing (OLAP). But, more important, do information systems executives even care?

Well, yes and no, depending on whom you ask. Benchmarks "can be skewed to mean anything you want them to mean," said Ken DeWitt, vice president of credit information systems at Sears, Roebuck and Co. in Hoffman Estates, Ill.

The TPC-D results "are stratospheric," said Wayne Eckerson, director of the business intelligence and data warehouse service at Patricia Seybold Group in Boston. The results that vendors attain using TPC-D "are nowhere near what users

will achieve," Eckerson said. That's because vendor benchmarking is done "in a highly controlled laboratory environment" in which vendors can "tweak" their systems to run at peak speeds based on the nature of the queries, he said.

Sears devised its own real-world "benchmarking kit" when it went shopping for a customer information data warehouse last year, DeWitt said. Vendors were asked to run their systems against a set of queries that Sears developed. Questions were representative of those that Sears expected to pose against a data warehouse, such as "Who are those customers that shopped with Sears automotive last year that don't have any current credit-card activity and live in the Midwest?"

Even though it took a few months for Sears to develop the benchmarking kit, DeWitt said

Benchmarking, page 74

Benchmarks "can be skewed to mean anything you want them to mean."

— Ken DeWitt, Sears

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Scaling up warehouses

CONTINUED FROM PAGE 21

new their combined power in a relatively inexpensive and painless manner. Users can start small and scale up quickly by simply adding more processors.

Users can run multiple applications in the same box using the different processors, all of which share a memory pool. And users can add processors without having to touch either the application or the database.

The biggest bottleneck is the memory bus bandwidth. As the CPU count increases, so does the amount of traffic on the bus. This eventually causes system throughput to decrease dramatically, analysts say.

"It is like a freeway. You put a certain number of cars on the freeway and everything works fine ... but you start having too many cars, and everything starts breaking down very fast," said Ken Radin, president of Emergent Corp., a data warehousing consultancy in San Mateo, Calif.

CLUSTERING

One way to get past the memory bus bottleneck is to cluster systems together to increase performance or availability.

For instance, by tying together two 16-processor SMP servers, or "nodes," users can build one 32-CPU configuration server and significantly increase performance. And this is cheaper than building one large 32-CPU system, observers say.

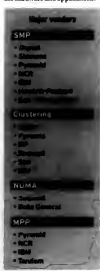
Clustering can be expanded so the total number of CPUs far exceeds the CPU limit on SMP boxes. Digital Equipment Corp. for years has been offering OpenVMS clusters that can tie together up to 96 nodes—each of which can be an SMP system.

In theory, at least, users can get significant performance gains with each additional node. But each node has its own memory pool and system bus, which means programming has to be done to coordinate the communication of information and sharing of data across the various nodes in the cluster.

Thus, performance improvements aren't linear, and the bandwidth of the interconnect between the nodes themselves is often too low to sustain high-performance gains. Some vendors—such as Digital with its Memory Channel interconnect and Tandem with its Conquest Inc. with its ServerNet technology—offer specialized interconnect technology to over-

come this bottleneck.

But for the most part, observers said users rely on clustering methods more for high-availability purposes than for performance scaling. For instance, two or more nodes can be tied together in one cluster so that if one node fails, another node takes over automatically. That guarantees high availability of the hardware and applications.



NUMA

The NUMA approach is a sort of hybrid between SMP and clustering. NUMA arranges multiple processors in a server in small groups of processors. For example, a 16-processor server can be arranged into a cluster of four nodes with four processors each.

That technique lets users tie together more processors in one enclosure than SMP does. Sequent Computer Systems, Inc.'s NUMA servers, for instance, can support up to 252 local processors in one box.

"NUMA is basically making it easier and a lot cheaper to build really large SMP boxes," Eunice said.

As with SMP, users don't have to tweak applications or databases each time additional processors are added.

"We wanted to increase scalability while staying with the simplicity of the SMP model. NUMA allowed us to do that,"

said Larry McAfee, vice president and chief information officer at Source Informatics, a provider of health care information services in Phoenix. The company runs a T-bite data warehouse on a Sequent NUMA system.

NUMA avoids the memory bus bottleneck issue in SMP by essentially breaking the bus into several smaller buses. The processors within each node in a NUMA server communicate with one another using these smaller SMP buses. And each of the nodes communicates with the others using fast interconnect technologies.

"The advantage of NUMA is that it doesn't force people into a new programming model. You can take an SMP application and put it on NUMA, and it will run," said Kevin Libert, director of marketing at NCR Corp.

The drawback is that NUMA isn't as mature as SMP. And a lot of its success depends on how quickly and completely all of the nodes in the system can communicate and share data.

"There is a concern that we are pushing the technology envelope a little bit," McAfee said.

MPP

For near-linear performance gains, observers said massively parallel systems offer the best bet. MPP is significantly more expensive—some systems start at more than \$500,000, compared with about \$240,000 for an entry-level Sequent NUMA-Q3000—and more complex to manage than the other architectures. But it gives users virtually unlimited node expansion and a single system view to the application and users.

MPP gets past the interconnect and bus bandwidth bottlenecks of some other architectures through brute force, using very fast switching and scalable interconnect technology.

In an MPP configuration, hundreds, if not thousands, of processors can be tied together. Each has its own memory and bus and is capable of handling its own tasks and communicating with the others via highly specialized interconnects and switches.

But the applications and the database have to be tweaked extensively to run optimally on MPP systems, observers warned. For instance, the applications themselves often have to be "parallelized," so specific tasks are allocated to specific processors or sets of processors based on computing requirements. □

Benchmarking

CONTINUED FROM PAGE 21

the effort was well worth it. "If we hadn't, we couldn't have appropriately sized the platform, and we wouldn't have known how many nodes to purchase," he said.

In December, Sears began loading a 3.5-Tbyte Informix Software, Inc. SP5 parallel relational database management system running on a 67-node IBM SP4 machine.

OBJECTION

Red Brick Systems recently slammed the TPC-D as "irrelevant" because TPC-D includes online transaction processing criteria that don't represent the query and load performance of relational databases used for data warehousing, including data marts, data mining and OLAP. TPC-D is backed by online transaction processing (OLTP) relational database management system vendors such

Some IS executives said they expect the TPC and Red Brick initiatives to exist separately and perhaps even be brought together in some form.

as Informix in Menlo Park, Calif., Oracle Corp. in Redwood Shores, Calif., and NCR Corp. in Dayton, Ohio.

Red Brick is publishing two sets of specifications for data warehouse benchmarking that cover canned queries—or relatively simple environments—and more complex warehouses that comprise multiple dimensions and large amounts of data. Red Brick expects to have the specifications published by early next month, with the first results expected by early June, said Steve O'Brien, director of product marketing at Red Brick. The company has no plans to ask the TPC for its blessing, a Red Brick spokesman said.

But the TPC recently asked Red Brick to help it develop TPC-Data Version 2, an invitation that Red Brick is "willing to examine," the spokesman said.

Kevin Strange, an analyst at Garner Group, Inc. in Santa Clara, Calif., said Red Brick executives "are kidding themselves if they think they're going to get other vendors to run their systems against Red Brick's benchmark to make Red Brick look good."

Gene Alvarez, a data administrator at Nine West Group, Inc.,

a footwear retailer in Stamford, Conn., said he thinks it would have been helpful to use a standard benchmarking process to compare the "like attributes" of the Oracle and Red Brick environments. It evaluated 16 months ago. But the leading criteria for an OLTP engine such as Oracle is different from a relational OLAP system such as Red Brick, which does automatic data conversion and referential integrity. Oo Oracle, data loading "is more of a two-step process where you load the data in raw form" and then do the referential integrity checks, Alvarez said.

Using TPC-D guidelines, Oracle can claim that it can load data faster. "But that's a raw data load which doesn't include a referential data check," said Alvarez.

The San Francisco bank has been using its own benchmarking kit to measure "the volatility of our own ad hoc environment," said Griffith, a senior vice president and general manager of corporate MIS at the bank. BankAmerica runs a 3.5-Tbyte NCR Teradata engine on (massively parallel processing) NCR 3600 and NCR 3500 Unix boxes.

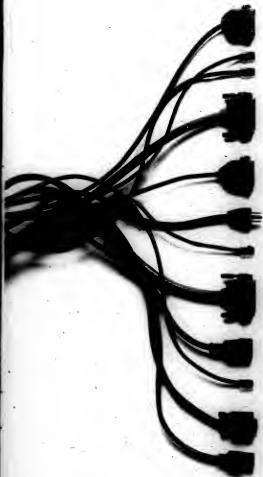
But because BankAmerica's data warehouse is growing at a 40% annual clip, "we need to upgrade the hardware once per year. This year, BankAmerica intends to 'reconcile' the TPC-D benchmark with its own testing criteria to measure how the systems perform with a mix of 'usual and 'power' users accessing the data concurrently," Griffith said. "We haven't quite noodled how beneficial [TPC-D] will be, but it could save us some work," Griffith said.

Most of the IS executives and analysts interviewed said they expect the TPC and Red Brick initiatives to exist separately and perhaps even be brought together in some form. Nevertheless, most of the conclusions about benchmarking are the same—customers will continue to use whatever they want, a stippled way of comparing "how the different players stack up," Eckerson said. □



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Managing

At Texaco, a radical rips up conventional wisdom on data warehousing to help yield millions of dollars in extra oil

BY ROBERT L. SCHEIER

MICHAEL J. ZEITLIN lifts an imaginary four-cubic-mile chunk out of the earth's surface and slices it like a delicatessen clerk would carve roast beef. With clicks of a mouse, he flips through the slices until he finds a red smudge.

"Watch this," Zeitlin murmurs, and a geologist next to him leans forward intently. They're looking at the bed of an ancient river whose smooth channel might carry oil. Using the mouse, Zeitlin lifts the underground formation out of its slice of earth, magnifies it, rotates it and even casts shadows on it like a plumber angling a utility light around a broken water pipe.

Three-dimensional data visualization applications such as this, and the data migration needed to make them work, cost Texaco, Inc. approximately \$500,000. But they allowed its geologists to pump \$45 million worth of extra oil last year from wells that have already been drilled, company geologists say.

THAT PAYBACK HAS BROUGHT SO MANY REQUESTS FOR HELP FROM OTHER BUSINESS MANAGERS THAT ZEITLIN SAYS HIS ADVANCED TECHNOLOGY GROUP IS SCRAMBLING TO HIRE ENOUGH QUALIFIED PEOPLE TO DO THE WORK.

To get these results, Zeitlin had to reject conventional information systems wisdom. Rather than slog through a slow-moving formal specification process, he cultivates a

That payback has brought so many requests for help from other business managers that Zeitlin says his advanced technology group is scrambling to hire enough qualified people to do the work.

To get these results, Zeitlin had to reject conventional information systems wisdom. Rather than slog through a slow-moving formal specification process, he cultivates a

Michael Zeitlin: Company portfolio

This, intense and fast-talking, 39-year-old Michael Zeitlin, former executive at several high-tech startups, is a self-described "geologist."

As a former geologist, he says he really "feels the pain" of the data visualization tools they needed to analyze the data they needed to analyze. As a self-described "geologist," he's always been fascinated by computers. He calls the graphics, the better. And as the youngest of three brothers, "I'm used to getting beat on a lot," he jokes. So he doesn't mind stepping on a few toes to make some needed changes.

Consider his next dubious strategy:

CREATING A

CASH GUSHER

grassroots network of internal customers who tell him what they need in new applications and serve as champions to talk up his work with other users. Rather than manage data centrally in an expensive data warehouse, he creates "asset databases" on departmental servers built around a common data model so data can be kept locally but used by others in an organization as needed.

Zeitlin works for Texaco's exploration and production business, based in White Plains, N.Y., where pulling a little more oil from an existing well or cutting pennies from the cost-per-barrel means millions to the bottom line. In 1991, he proposed giving geologists the ability to "see" underground formations in three dimensions.

Moving the data is easier said than done. Consider the "well log," which records at what depths the well passes through underground oil-bearing sands. Richard Cullip, a geology specialist at Texaco in Bakersfield, Calif., recalls that until about two years ago, it took 90 minutes just to download the well log data for California's Kern River Field from a mainframe in Houston. Then there was the matter of different data formats and definitions among the databases, such as whether to measure well depth from ground level or from the bushing that holds the well pipe as it spins.

The conventional solution for such problems is a data warehouse, a massive central storeroom of data pulled from production databases and "cleaned" to eliminate differences in format and data definitions. Decision-support applications such as the 3-D visualization program then pull the needed data from the warehouse.

IRRELEVANT AND EXPENSIVE

Zeitlin rejected that as too expensive and too irrelevant to the business. Creating such warehouses can take years and millions of dollars before users see any financial return. The benefits of warehouses are so unclear that some IS managers are considering charging user departments to use the warehouse as the best way to recover their costs (CW, March 17).

Zeitlin argued that the most accurate, up-to-date and well-analyzed information already is on the geologist's PC or workstation. His proposal: Maintain one copy of the data as close to the user as possible. Zeitlin's asset databases are in essence local data marts, but he doesn't plan to combine them into a central warehouse.

Zeitlin's group then wrote "loader" software to extract and cleanse data from multiple legacy databases. Some of that data, such as well logs and historic oil production data, was stored in databases within Texaco. Some of the data was generated by other oil companies and

made public by government agencies.

The loader programs transfer the data to Oracle Corp. asset databases accessed through Silicon Graphics, Inc. workstations that run ArcView, a geographic information systems application from Earth Sciences Research Institute in Redlands, Calif. For geologists at Kern River, for example, Zeitlin's group combined well log information from the mainframe in Houston with data about temperatures inside the well that was already stored on users' PCs.

Creating that common data model is where many IS organizations fail, but Zeitlin had an advantage: a standard data model called Epicentre, created for the petrochemical industry at a cost of \$80 million to \$90 million by the Petrochemical Open Software Corp.

Although other oil companies and software vendors have been slow to adopt Epicentre, Texaco could at least use it internally. His trial run was at Kern River, which holds 25% of the company's oil reserves and where geologists were looking for ways to get more oil from 4,000 existing wells. Using Zeitlin's 3-D visualization tools "allowed our oil production to come up from 80,000 barrels per day to 100,000 a day," Cullip says. "We did that in a little less than a year. I don't think we would have even attempted that with our old system."

MORE LEeway

To be fair, Zeitlin has more flexibility than many IS managers because he runs a research lab, not a data center responsible for application or network uptime. In addition, he didn't have to design his applications for universal use right away. Most of them now involve no more than 25 concurrent users who access 4G- to 5G-byte databases.

The use of 3-D visualization software isn't unique. Phillips Petroleum Co. in Bartlesville, Okla., for example, has deployed such applications worldwide to analyze things such as seismic data, drawing information from a mix of centralized and project databases, says



SLICING THROUGH A 3-D CHINESE OF GARTH (TOP), TEXACO BUILT-BUILT BUILT AND CLEANSING POSSIBLE OR CLEANING FORMATIONS DATA OF THE ARCADE INFLUENCE (BOTTOM)

Jacquelyn Pope, a senior geophysical research specialist at Phillips. She says that at the company, the user "assumes responsibility for updating the central data store when he is finished." That is unlike Texaco, where the data is kept only at the location where it's used.

"The risk in giving the user total ownership of his data is that only he will know the most current and accurate version, and other users who need the data may not even be aware of its existence," Pope says. "Data management and ownership are real issues." While declining to be specific, Pope says Phillips managers "are reviewing our data management strategy" with such issues in mind.

Zeitlin is betting that as network speeds increase and more applications support the Epicentre model and become World Wide Web-based, it will be easier to share data among distributed databases when needed. More centralized databases should be created only when necessary for business reasons, he says, and they should be located as close to the user as possible.

Zeitlin acknowledges that it remains to be seen how well his approach will work with larger applications and when trying to perform queries across the distributed asset databases.

Local data management is a headache, Cullip says, although he said he expects that to be solved when Zeitlin's group delivers automated data management tools.

Creating a cash pusher, page 18

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by year's end. "We're still trying to catch up" on learning to manage local databases for the 3-D applications, says Charles Smizec, reservoir engineering manager in Bakersfield. "But the beauty of this is that now we have a reason to develop that support and expertise."

Zeitlin's group has used its experience at Kern River to cut implementation times for smaller applications to as little as 24 hours and the cost to as low as \$2,000.

CREATING A CASH GUSHER

TWO VIEWS

CONVENTIONAL VIEW

- Managing data properly is most important.
- Data used to make critical decisions should be kept in a large, centrally managed data store.
- Organize data around functional areas of the business.
- Applications aren't worthwhile if they can't grow to accommodate more users.
- It's too expensive to maintain distributed databases, compared with a central data warehouse.

CONVENTIONAL DATA WAREHOUSE

PROS: Central location makes data management easier. Decision-makers can get data without disrupting critical applications. Decision-makers throughout company can access same data.

CONS: Data is old before it gets to users who need it. Business managers must pay steep warehouse development costs long before they see benefit. Decision-makers rarely return corrected, updated data to the warehouse.



ZEITLIN'S VIEW

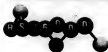
- Using data properly to make money is most important.
- Data used to make critical decisions is usually on the decision-maker's hard drive, unavailable to others.
- Organize data by the corporate assets you're managing.
- Try for scalability, but if you get a big enough return for the original users, who cares?
- Distributed databases can make so much money for the company that users will pay for extra maintenance costs.

DATA MANAGEMENT AT TEXACO

PROS: Decision-makers have the most current and accurate data at their desktops. Data is moved into local databases when needed for specific business problems, thus delivering faster return on IT investment. Use of common data model paves way for future sharing of data across asset databases.

CONS: Local departments must manage the asset databases, adding to their workload. Data from asset databases may be hard to share if other Texaco units or its trading partners don't adopt the common data model. Data from asset databases may be hard to share if network speeds don't increase soon.





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PETER G. W. KEEN

ARE YOU READY FOR THE 'TRUST' ECONOMY?



What new trend in the information technology field will have the most long-term impact on business? My own candidate is one word: trust. It's now clear that we aren't moving toward an information economy, but a trust economy based on information and technology.

The growth of this new economy depends on mechanisms for ensuring trust, not on technology per se.

The obvious example is electronic commerce on the Internet. Here, security is the perceived barrier to the emergence of a consumer mass market. Yet the Internet is far more secure already for credit-card transactions than our everyday casual passing of credit cards to waiters or buying goods over the phone. The 'net is becoming more secure, but people don't yet feel it's safe. They don't yet trust it.

In business-to-business electronic commerce, which has grown by 15% to 20% a year for more than a decade, the trust issue now is also the key blockage or enabler. A year ago, none of the magazines that specialize in electronic data interchange (EDI) used the word. Now it's hard to find one that doesn't have an article with "trust" in the title.

Trading partner agreements, business relationships and customer-supplier interactions define the trust frontier. For example, the True Value hardware store chain gives its suppliers access to previously secret point-of-sale data, lets them stock the shelves and issues a purchase order after the goods have been shipped.

In a trust economy, "partners" must change the nature of their contractual

relations with each other. Otherwise, the term is just an empty cliché. In conventional "c-a-p-a-t" contracts, the parties lay out who is legally liable if something goes wrong, and how that is to be determined; the contract provides the base for a court to decide. Trust economies require "c-a-u-s-e" contracting, which accepts that things often will go wrong and aims at working together and ending the fault-liability mentality.

After firms such as Chrysler, General Electric and Ford extended their electronic commerce logistics across their supply chains, they all reduced their number of suppliers, stopped playing them against one another and strengthened relationships in terms of trust and openness.

Executives also need to understand that there are two dimensions of trust: trustworthiness as a value and "trustability" as a skill. Trustworthiness is about sincerity and honesty. Trustability is about reliability and competence. There are many concerns about trustworthiness in electronic relationships: deception on the Internet, hackers, viruses, authentication, digital signatures and the like. There are now far more concerns about trustability. America Online's too-rapid move toward fixed pricing breached its trust re-

lationship with many of its subscribers, some of whom are now suing AOL. They can't trust that they can get online as "promised."

Electronic commerce in business-to-business relationships is close to becoming a requirement for a well-run firm. EDI and customer-supplier links are now the norm rather than the exception.

MOVING TOWARD TRUST

All this is nothing new. Looking back over the past 50 years, it's clear that the three major shifts in business are all part of the move to a trust economy.

Total Quality Management was almost a panic reaction by U.S. manufacturers to rebuild loss of trust in their product. The customer service revolution built trust in the transaction. The move now is to build trust in relationships between customers and business. That's what customer retention, account management, private banking and mass customization are about.

IS is now fundamentally about building trust.

Perhaps we should change the term information technology to relationship technology. □

Keen can be contacted at his World Wide Web site, www.peterkeen.com.

SOURCES IS MANAGER'S BOOKSHELF

Strategy for Information Technology

Howard R. Boaz
Wiley & Sons, New York; 266 pages;
\$49.95 (paperback)

If you're a leader in an IS organization that has yet to form a strategy for the Information Age, you may find this book a help—especially if you're easily inspired by a military metaphor.

Boaz, an information technology consultant who has four previous books to his credit, points out the importance of IT in tomorrow's "marketplace," a word,

he says, that illustrates where the global marketplace is heading: away from stores and into cyberspace.

But until the third chapter, Boaz says little that hasn't been written before about re-engineering information systems into a potent competitive weapon.

He relies so much on "war" analogies that it gives you the feeling he's jammering his point home long after you get it.

But Boaz begins to earn his keep from the third chapter, when he talks about strategic ideas.



The main message here is to push IS into becoming a quick-thinking, proactive organization that never rests and can be a chief business driver.

Among the ideas: Using speed and agility to attack a business problem; allying with other members of the value chain, such as suppliers and distributors, to help create advantage; and showing your staff how committed you are to following the company's goals so that they, too, will follow.

The sixth chapter is Boaz's best. He ad-

vocates the organization of IS into "centers of competency," or teams of employees, with logically related sets of skills. The centers comprise an internal marketplace. They don't receive budgets—payment for their products and services comes from the "internal customers" they serve. The effect is to have IS operate like a business, constantly looking to upgrade its offerings and keep the customers happy.

Doing that would make it easier to help the entire business react quickly to marketplace change, much like an army would in war. —Rick Sals



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Buyer's Guide

CUSTOMER SATISFACTION SURVEY

Servers and software



GIVE THE EDGE TO IBM'S AS/400 group and Hewlett-Packard Co. as leaders in the distributed systems field. Meanwhile, it's tough going for Sybase, Inc. in database management and Computer Associates International, Inc. across the board. That's what the customers say.

Computerworld polled 1,690 users to measure their satisfaction with their mainframe and distributed systems vendors. The survey focused on vendors that offer large to medium-scale hardware

platforms, including system-level software such as systems management, database management, tools and utilities. Respondents ranked their satisfaction with vendors in areas such as product quality, service and support, cost of ownership and general comfort with the vendor.

The most notable results demonstrate that some vendors are satisfying their customers much more than their competitors do. For example, IBM's AS/400 scored exceptionally high satisfaction ratings in nearly every survey category. Users balked at its price, but its superior ratings in areas such as service and support, product quality and database management put the AS/400 in a league of its own.

HP had the same success in its networked printer business: It ran far enough ahead of the competition to be named the best on a statistically valid basis.

Other survey results are tighter, but they still demonstrate the different strengths and weakness of vendors. They can serve as one more tool that can be used to evaluate vendors when they come knocking. — Kevin Burdon

Customer satisfaction survey, page 84

MAIN SURVEY HIGHLIGHTS

► **OF THE 10 PRODUCT CATEGORIES** in this survey, HP placed first in three of the four categories in which it showed up as a significant player. IBM placed first in three out of eight categories that were applicable to it.

► **COLLECTIVELY, USERS ARE MORE SATISFIED** with their hardware vendors than they are with their software vendors. They're least satisfied with the cost of ownership, and their comfort with their vendor is clearly correlated to their overall satisfaction.

► **MAINFRAME USERS** are more satisfied than users of distributed systems according to the scores given to mainframe hardware vendors, compared with those for server vendors.

► **CA SCORED DISMALLY LOW** in its three core business sectors: mainframe database management systems; mainframe tools and utilities; and distributed systems management software.

PAGES 85, 92

► **DELL COMPUTER CORP.** ran

neck-and-neck with PC-based server rival Compaq Computer Corp. in most categories but pulled ahead of the field in price and value categories. PAGE 84

► **IBM SCORED RESPECTABLE MARKS** in mainframes, and the AS/400 received the highest user satisfaction grades for distributed systems. PAGE 84

► **NETWORKED SYSTEMS PRINTERS** received some of the highest overall customer satisfaction scores in the survey. HP was clearly rated best in this market. PAGE 91

METHODOLOGY

THE SURVEY was sent to 4,000 corporations and large organizations selected from Computerworld's buyers' database. Respondents returned 1,690 surveys by the March deadline.

Respondents rated their satisfaction with various aspects of their primary and secondary vendors on a 1-to-5 scale, where 1 is "not at all satisfied" and 5 is "completely satisfied."

Computerworld declared winners only when a vendor emerged with a statistically valid advantage over its competitors. Other scores can't be projected to the year base at large. Standard error of the means can affect the vendor order when it is factored in.

CUSTOMER
SATISFACTION
SURVEY

Servers and software

DISTRIBUTED SYSTEMS HARDWARE

USER SATISFACTION with distributed systems still falls short of user satisfaction with mainframes. For example, in overall satisfaction, only one mainframe vendor — Unisys Corp. — failed to post a better score than HP, the highest-ranking distributed systems vendor. It is also interesting to note that the distributed vendors with the highest satisfaction scores were also traditional systems vendors. HP and IBM have the highest overall customer satisfaction.

But Digital Equipment Corp. despite its weakness in overall satisfaction, still made an impressive showing in many individual categories.

Critical categories such as systems quality, service, scalability and reliability were captured by those three vendors.

Which vendor had the most satisfied users?

HP, with a mix of its proprietary HP 3000 operating system and Unix-based HP 9000 sites, did best in overall satisfaction. HP was particularly strong in service categories such as responsiveness and problem solving. It also scored very well in its value for the dollar.

IBM wasn't far behind HP in overall satisfaction. In fact, IBM might have ranked first in this section of the survey — by a sizeable margin — if the only IBM users surveyed were AS/400 customers. Those users gave some of the highest grades in

the entire survey. But the RS/6000 user base gave the AS/400-based servers only mediocre scores, which dragged down IBM's overall grades.

The AS/400's best scores came for product quality and service and support. In five separate support-related categories — which included questions on responsiveness, quality of advice and problem-solving abilities — AS/400 users put their satisfaction level above all others. AS/400 users also gave IBM high grades in the database-management field.

As for the RS/6000, its users are the least satisfied of the survey. In nearly every category — from equipment quality and value for the dollar to vendor flexibility and all five service and support questions — RS/6000 grades were lowest among the server vendors.

But not everything was perfect with the AS/400. It scored

the lowest satisfaction grade for its price range. However, the AS/400 group got a slight reprieve for value, where it scored better than the other systems vendors. James Steiger, systems manager at Genesee Management, Inc. in Rochester, N.Y.,

says his AS/400 still heavily taxes his budget 10 years after he installed it. "But it's reliable, we know how to manage it [and] it never surprises us with unexpected blotches, so we don't mind paying for it," he says.

Many of the AS/400 users apparently felt the same way. Its value for the dollar rivaled that of the PC vendors that bank on the value they deliver.

Two PC companies, Dell Computer Corp. and Compaq Computer Corp., scored just below systems vendors. HP and IBM in overall satisfaction but fared much better in categories that relate to cost and value.

Dell and Compaq consistently scored above the survey mean in all pricing categories; Dell always held the edge over Compaq in the scores.

In categories where systems vendors have traditionally held an advantage, including reliability and scalability, the PC ven-

dors scored lower but still did well enough to say users are generally satisfied with the systems.

Sun Microsystems, Inc. posted a respectable overall satisfaction rating but wound up near the bottom in many of the other categories. Its worst scores were in the three cost-related categories. Its value for the dollar and cost-of-ownership scores lagged behind the other vendors, plus it scored an individual low for its price. But despite how they feel about Sun's pricing, more than 92% of Sun's users said they would probably or definitely use Sun products again.

Such strong loyalty from relatively low customer satisfaction hints there is more to Sun and its products than these charted questions uncovered. For instance, technological direction — if it had been included in the chart — would have been Sun's highest score at 3.99.

Regardless of vendor or system, all users in transaction processing environments rated their satisfaction above those who use the same systems for decision support. Digital scored the highest for both processing environments, but it also had one of the largest gaps between the two ratings. — Kevin Burden

OVERALL SATISFACTION

Reported on a scale of 1 to 5, where 1 is "not at all satisfied" and 5 is "completely satisfied"

HP	3.91
IBM	3.86
Dell	3.85
Compaq	3.80
Sun	3.78
Digital	3.74
Unisys	3.70

Distributed systems

HP AND IBM tended to fight for leadership positions in each of the survey's categories.

IBM EXCELLED when numbers for its AS/400 were broken out from other IBM servers, such as the RS/6000.

DELL SCORED WELL in the cost categories of the survey, posting good marks for price, value and cost of ownership.

	Hours	Transaction processing	Decision support performance	Reliability	Value
HP	331	3.86	3.72	3.88	4.12
IBM	569	3.89	3.69	3.82	4.15
Dell	53	3.77	3.66	3.62	3.96
Compaq	299	3.78	3.70	3.75	4.00
Sun	171	3.75	3.64	3.79	3.90
Digital	210	3.91	3.73	3.98	4.10
Unisys	43	3.80	3.66	3.72	3.83

Distributed systems management

THE PICKING ORDER stayed consistent throughout the categories: HP on top, CA at the bottom. Most of the

vendors' scores dipped in cost of ownership but recovered in comfort with vendor.

	Users	Overall satisfaction	Usability	Services and support	Cost of ownership	Comfort with vendor
HP	38	3.79	3.79	3.79	3.66	3.97
IBM	103	3.59	3.60	3.57	3.48	3.72
Microsoft	30	3.53	3.55	3.48	3.53	3.71
CA	55	3.36	3.43	3.41	3.13	3.43

DISTRIBUTED SYSTEMS MANAGEMENT

SATISFACTION SCORES among the popular distributed systems management vendors ranked HP first and CA last. CA was last among four systems management vendors in overall satisfaction and in other key areas such as service and support, software quality and comfort with vendor. CA, with an overall satisfaction score of 3.36, did better in distributed systems management than it did in its two other technology areas — mainframe database management systems and main-

frame tools — but still trailed HP, IBM and Microsoft Corp.

What do these satisfaction grades really say about CA and its products? Since the grades are based on a 5-point scale and since CA's grades averaged to be about 3, users don't praise or strongly condemn the vendor. Satisfaction is strictly mediocre among the user base.

But since every other vendor managed to score higher than CA, its customer satisfaction appears far more negative than positive.

CA's primary product in distributed systems management is CA-Unicenter.

Because users were asked to evaluate their vendor and not specific products, some of the

CA respondents may have been using only elements of Unicenter or CA management tools that fall outside the Unicenter family. The same caveat applies to the other vendors and their suite offerings.

When asked to interpret CA's poor grades, one respondent said that after the sale, CA wasn't as supportive as the

marketing effort led the user to believe. "Our operations people like Unicenter because it runs consistently and it's not difficult to learn. But my technical staff complains endlessly about CA because they don't get the response CA promised in their sales presentations," says John Downie, a technical support manager at Jackson-

ville Electric Authority in Jacksonville, Fla.

HP, whose primary product in the category is OpenView, got the top customer satisfaction scores in every category. It scored the highest overall satisfaction, where it received 3.79. And it got the highest score for comfort with vendor.

IBM, which primarily sells the Tivoli Management Framework, was a close second to HP in every category.

It scored well for vendor comfort but scored poorly for cost of ownership.

"We're evaluating Tivoli, but it looks like it will be twice the cost of Unicenter," Downs says. — Kevin Burden

DIGITAL'S STRENGTHS in scalability, reliability and quality were offset by weaknesses in cost of ownership, where its score dropped off.

THE INDUSTRY AS A WHOLE did better in transaction processing than in decision-support applications.

MORE THAN 90% OF HP, IBM, Sun, Compaq and Dell users said they would probably or definitely use the same vendor again.

ALL VENDORS FELL OFF in the service and support sector, and except for Dell, they also showed weaknesses in price.

Hardware quality	Services and support	Price	Value	Cost of ownership	Comfort with vendor
3.95	3.70	3.60	3.71	3.64	3.99
3.98	3.72	3.40	3.55	3.55	3.95
3.79	3.61	3.91	3.96	3.94	3.93
3.89	3.55	3.53	3.61	3.58	3.90
3.92	3.64	3.40	3.48	3.47	3.87
3.98	3.67	3.50	3.59	3.55	3.77
3.85	3.58	3.62	3.59	3.59	3.73





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Servers and software

Networked printers

HP SCORED a statistically valid win built on the strength of its scores for product quality, service and support, and comfort with the vendor. Lexmark challenged HP in cost of ownership.

HP	951	4.24	4.33	4.10	4.09	4.30
Lexmark	51	4.06	4.14	3.98	4.08	4.16
Digital	39	4.03	4.03	3.97	3.62	4.15
IBM	248	4.02	4.05	4.04	3.84	4.11
Xerox	98	3.77	3.89	3.67	3.48	3.79

HP ATOP THE NETWORK PRINTER HEAP

HEWLETT-PACKARD USERS DECLARED their vendor the hands-down winner in networked printing. They rated HP best in overall satisfaction, quality, service and support, cost of ownership and comfort level. Of 1,463 respondents who rated printer makers,

more than 950 were HP users. Other vendors in our survey trailed HP for overall satisfaction in the following order: Lexmark International, Inc., Digital Equipment Corp., IBM Printing Systems Co. and Xerox Corp.

What do users like about HP? "It's the reliability and durability of the equipment. We have HPs that we've been running for five years, and they're

still chugging along," says Stephen Nees, project leader at the Automobile Club of Southern California in Costa Mesa.

"Their laser printers are just about as solid as you can find," says Milton Sans Soucie, an information systems manager at Spectral Electronics Corp. in Ontario, Calif.

"HP's done a good job enabling their products to easily connect to the networks, so

that makes the IS and LAN professional's job much easier," says Robert Fennell, director of the printer group at Dataquest in San Jose, Calif. "People are familiar with HP, as well."

Users and analysts agree that although HP has a good product line, it isn't perfect. For example, Sans Soucie says he likes HP lasers, but he doesn't like HP's ink-jet print-

ers. "As far as their ink-jets are concerned, Epson [America, Inc.] is making better ones," he says. His problem with HP ink-jets occurred when he tried to put a second HP 444 Jet-Direct online. "I've had trouble with it ever since. It only uses one protocol. In HP's defense, I haven't called them to talk with them about my problem. But their equipment is not the end-all."

Nees says he has also experienced minor problems with HP's JetDirect. "We've had a couple of glitches with their JetDirect Token Ring adapters, but we've figured those things out," he says. The only way he would switch from HP, he

says, would be if another vendor could demonstrate that it has greater reliability and lower operating costs. "HPs tend to be a bit pricey to operate," Nees says. "Their cost per page is not the lowest by far."

Some competing products have stronger features than HP, Fennell says.

"Lexmark has brought 1,300 dot/in. to the marketplace at mainstream prices. Xerox has very nice paper handling on their products that HP doesn't have. But having a better width, if you will, from a specification standpoint doesn't always do the trick for you," Fennell says.

— Kathleen A. Gagne

DBMS

DRIVEN BY ALFADO USERS who were pleased with the DBMS built in to their OS/400 operating system, IBM scored a statistically valid win. The OS/400 beat out the various open systems vendors, while

Microsoft's Windows NT-based SQL Server edged to the top in the open systems group. Microsoft and Oracle Corp. scored well when users were asked whether they would buy again from their vendor. Sybase

trailed the pack in most categories. One sign of how well-accepted distributed databases have become is that two-thirds of the mainframe users also were able to evaluate distributed DBMS products.

IBM (OS/400-specific)	65	4.17	4.19	4.20	3.86	4.22
IBM (nonspecific)	161	4.03	4.04	3.98	3.84	4.08
Microsoft	188	3.71	3.71	3.55	3.71	3.75
Informix	75	3.63	3.68	3.53	3.53	3.63
Oracle	375	3.62	3.78	3.55	3.27	3.65
Sybase	153	3.41	3.47	3.33	3.40	3.39

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MAINFRAME PRODUCTS

Mainframe hardware

IBM AND MAINFRAME RIVALS Hitachi Data Systems Corp. and Amdahl Corp. outdistanced Unisys Corp. Hitachi held a slight edge over IBM and Amdahl in overall satisfaction. All the vendors took a dip in ratings in cost of ownership.

	Users	Overall satisfaction	Software quality	Hardware quality	Cost of ownership	Customer support
Hitachi	33	4.12	4.33	4.09	4.00	4.18
Amdahl	67	4.06	4.16	4.03	3.83	4.06
IBM	441	4.04	4.32	4.06	3.61	4.08
Unisys	142	3.85	4.18	3.90	3.51	3.80

Mainframe DBMS

UNISYS POSTED SOLID NUMBERS for database management systems. IBM's key products, IMS and DB2, were on par with each other. CA fell to the bottom of the pile with weakness in cost of ownership and comfort with the vendor.

	Users	Overall satisfaction	Software quality	Hardware quality	Cost of ownership	Customer support
Unisys	103	3.95	4.12	4.01	3.72	3.96
IBM	339	3.84	3.91	3.85	3.52	3.96
Software AG	41	3.61	3.73	3.54	3.24	3.46
Oracle	58	3.60	3.66	3.46	3.26	3.64
CA	89	2.94	3.37	3.08	2.89	2.93

Mainframe disk

THE TREND CONTINUES. Buyers tended to be happier with hardware than with software and services. Scores were generally positive, as they were for mainframes. Hitachi gained a slight edge on relatively few responses.

	Users	Overall satisfaction	Software quality	Hardware quality	Cost of ownership	Customer support
Hitachi	34	4.35	4.42	4.24	4.24	4.32
EMC	115	4.23	4.39	4.24	4.01	4.21
IBM	385	4.15	4.17	4.16	3.86	4.20
Unisys	124	3.99	4.23	4.06	3.70	3.95
Storage Tek	52	3.90	4.06	3.94	3.98	3.92

Mainframe tools and utilities

IBM GREATLY OUTPERFORMED its biggest competitor, CA, which garnered poor marks for comfort with vendor. All five vendors showed weak ratings for cost of ownership.

	Users	Overall satisfaction	Software quality	Hardware quality	Cost of ownership	Customer support
IBM	333	3.89	3.95	3.87	3.54	3.96
Unisys	93	3.87	3.91	3.85	3.66	3.88
Candle	42	3.83	3.90	3.86	3.55	3.86
Platinum Technology	28	3.57	3.69	3.66	3.41	3.55
CA	295	3.15	3.41	3.21	2.96	3.12

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IS RE-ENGINEERING STILL RELEVANT?

Re-engineering needs to get quicker and leaner, but in today's rapid-fire business world, it's more vital than ever

By Mike Korchinsky

The impact of re-engineering on the collective business consciousness has been profound. More than any other movement, the instant popularity of re-engineering in the early '90s reflected the uncomfortable reality that faces organizations large and small all over the world. Change is here to stay; reinvent to compete or get left behind.

But despite its great promise, re-engineering is wrestling with a growing credibility problem, largely because of a much-publicized 70% failure rate.

Regardless of re-engineering's high level of failure, Gartner Group, Inc. projects the market to grow by 30% per year until the end of this century. Businesses will invest in professional re-engineer-

TESI page 96

Korchinsky (left) founded Aston Management Consulting, Inc. in 1981 and was president and CEO until it merged in 1995 with Cambridge, Mass.-based Cambridge Technology Partners, Inc. Aston became the Cambridge Management Consulting business unit, where Korchinsky is a senior vice president and general manager. He has 15 years of consulting experience and expertise in high technology, telecommunications and manufacturing.

Imposed change is bound to fail; as an alternative, organizations should try 'de-engineering'

By David Coleman

We are in the middle of a re-engineering revolution with a failure rate that is greater than 70%. Michael Hammer, the prophet of re-engineering, predicted that U.S. companies would spend \$32 billion in 1996 on re-engineering efforts — and that two-thirds of those efforts would fail.

I have nothing against re-engineering per se. The idea of optimizing a process is a good one. But optimizing the process without taking into account the people in the process is the major reason re-engineering fails.

One notable re-engineering failure is the modernization of the air traffic control system. In an August 1996 report on the Federal Aviation Administration, the General Accounting Office stat-

NOI page 96

Coleman (right) is managing director of Collaborative Strategies (www.collaborate.com), a San Francisco-based management consulting firm focused on electronic collaboration and knowledge management. He is author of the book *Groupware: Technology and Applications and of a forthcoming book from Prentice Hall, Inc., *Groupware: Collaborative Strategies for Corporate LANs and Intranets*. His internet address is david@collaborate.com.*



YES!

CONTINUED FROM PAGE 92

ing services to the tune of \$8.7 billion by 1999, Gartner adds.

Clearly, organizations are still in pain and want to believe in the medicine. The reason? Regardless of the deficiencies of re-engineering, companies desperately need help to keep up with a relentlessly changing business environment. The astonishing potential of a technology-enabled marketplace has only magnified the challenge.

So what is wrong with re-engineering? Ironically, one of the most significant factors is the accelerating pace of change in business. In some markets, product cycles are as short as nine months, and in most organizations, planning cycles are less than three years. Yet recent surveys show that the management consulting component of re-engineering projects alone can take 30 to 36 months.

Enterprise-wide initiatives that promise a perfect solution can't hope to implement change with any real-world business benefits in mind. What's worse, up to 75% of the time, re-engineering is a euphemism for cost-cutting or downsizing, unaccompanied by any significant process or technology change. Although such efforts can provide short-term profitability gains, they ignore the other side

of the value equation: the need to grow business and market share profitably.

To meet that strategic imperative, companies must first define the necessary change, then address process, organizational structure, enabling technology and employee performance—all in 12 months or less. That's the way to use re-engineering to capture business benefits within today's planning horizons.

In short, we need to reinvent the business of change.

So where to begin? The need for shorter time frames requires careful attention to scope. Isolate the 20% of the problem that if solved will generate 80% of the solution value. Then aggressively manage scope.

Avoid unnecessary delays such as those caused when operational solutions are disconnected from the enabling technology. Not only is technology a core element of every organization's business operations, but pursuing new technologies with new processes also can shorten distances, shrink time and mine customer loyalty (order) from transaction data (chaos), thus providing a wealth of opportuni-

ties for strategic business innovation.

By shortening business efforts, we can go a long way toward resolving another cause of re-engineering failure: weak executive support. Executive support falters for several reasons. The first is a decline in executive tenure, now as short as 18 months. A traditional re-engineering project takes two to three years to complete, and the original sponsor typically moves on before its conclusion, leaving the change effort to collapse. A one-year time frame for project delivery makes executive sponsorship more secure.

The second reason executive sponsorship fails is inadequate business-case development. Without a solid business case, an organization can get halfway through a re-engineering effort before it realizes that the cost of implementation will outweigh the benefits to be captured. To prevent that, organizations should develop a business case early in the process and reassess it frequently to determine whether the effort should continue.

Finally, executive sponsorship will be more secure if senior managers believe there is consensus and ownership of the

re-engineering effort in their team—not just within a small part of the consulting organization leading the charge.

By now, I hope it's clear that the kind of change envisaged for the future, although certainly drawing on re-engineering, is a different kind of animal—still process-oriented, but more selective about which processes are addressed and how to leverage technology to best enable those processes. It's focused on achieving dramatic gains but with better assurance that you'll get there.

Undeniably, this new model of change will have victims. Some of the consulting change managers themselves could suffer the most. They are rightly under increasing pressure to be accountable for the success of their efforts.

But then, managing change has never been easy. The new, faster pace of today's business landscape has just made it that much harder. However, this is no time to shy away from change. More than ever, organizations that face up to the challenge of anticipating and managing business transformation will lead their industries into the future. □

NO!

CONTINUED FROM PAGE 92

ed. "The FAA organizational culture has been the underlying cause of the FAA acquisition problems.... FAA officials are resistant to making changes in their acquisition process because FAA culture rewards conservatism and conformity and discourages innovation."

The executive summary of this report says, "Over the past 25 years, FAA's modernization program has experienced substantial cost overruns, lengthy schedule delays, and shortfalls in performance. The FAA's organizational culture has been an underlying cause of the agency's acquisition problems and processes."

Here we see many processes that have been engineered, re-engineered and optimized—and still failed because the culture wasn't changed in tandem with the technology and the revamped processes.

Re-engineering in the early 1990s seemed to be a rationale for getting rid of people. It's no wonder there was a lot of resistance. Many re-engineering processes failed not because of the technology, but because of the culture.

"Re-engineering" is actually a misnomer. Many processes weren't "engineered" in the first place. Business pro-

cesses tend to develop under the pressure of finding a way to get something done quickly. Often those processes aren't well thought out but are invented by the person responsible for the task. Once that person's ingenuity is implemented, it becomes codified in a procedure manual. Next thing you know, there's a new policy. A bureaucracy develops, and jobs are assigned based on the inefficiencies of the processes.

Needless to say, when a re-engineering effort is announced, people become de-

fensive about their job security and resist the inevitable changes.

By nature, people are resistant to change, and organizations are especially more resistant. That's Coleman's Law. The corollaries are: The larger the organization, the greater the exponent number; the bigger and more complex the project, the greater the exponent will be; and the more I see the change affecting me, the greater my resistance will be.

If people are generally resistant to change, they are even more resistant to the directives that accompany any re-engineering effort. At least in our culture

Re-engineering efforts failed not because of technology, but because of culture.

—David Coleman

of cowboys, pioneers and rugged individualists. Their resistance becomes the greatest organizational problem in re-engineering.

As we wrestle with the complex issues of technology and organization, we need a new model that encompasses both. Most human systems contain some degree of chaos but also have the ability to self-organize. In general, it's better not to resist this disposition, but rather to take advantage of it. I call this "de-engineering." Let the system dissipate, while

maintaining many of the resources (such as people, knowledge and experience). Most companies resist dissipation.

It's a hard concept to swallow, because it's counterintuitive. It's natural to preserve the organization and all it stands for. People get nervous when they don't know what their role will be in the new organization. De-engineering involves a lot more autonomy and self-direction for those involved and is preferable to an imposed re-engineering solution.

To move from re-engineering to de-engineering, you must accept that all structures dissipate and systems are self-

organizing. Rather than try to control change through re-engineering, the proponent of self-organization will accept dissipation and preserve resources (people, processes, knowledge, experience) for the new organization. Re-engineering sacrifices people in favor of process.

Re-engineering focuses on control and structures rather than on purpose and direction. We no longer let the structure emerge the way a stream finds its course down a hill. Instead, we try to structure a



process or plan the outcome. The fact that re-engineering hasn't met with great success shows that we may be taking the wrong approach: rather than impose a structure, it might be better to provide a direction and some tools to help the organization move in that direction. Then let the people re-engineer themselves. □



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IT Careers

DB BANDIES

By Melanie Menagh

Data management is a fact of life and the heart of any organization that wants to survive in the global arena. Despite this rather obvious fact, many information systems professionals still haven't acquired database skills — and that has created a booming seller's market for those who have.

For candidates with the right skills and temperament, there are challenges, prestige and big bucks for the taking. *Computerworld* spoke with several IS managers and recruiters about their hiring needs and what they look for in database professionals.

CW: What is the current demand level for database skills?

CASTALDI: "I can't think of an industry where this is not a core requirement. Globally, I can't think of a case where the availability of information, getting data to the fingertips of the people who need it isn't critical, and at the foundation is the database."

EICHMORN: "Everyone we deal with is a Fortune 500 firm, and they're all looking for database people. Any step with more than 25 people needs these skills. If you're not getting database skills, you're

falling behind. If you don't have database skills in the future, you're dead."

CW: Which database skills are the most valuable to have?

EICHMORN: "DBA is most in demand, because it's where the basic foundation of data highways in major corporations was laid, where transactions first started. There are also high volumes of shops working with Oracle and Informis, with Sybase coming up from behind." **CASTALDI:** "For entry-level positions, brand-specific knowledge may not be

necessary. It's very important to have a good core background — a computer science or management IS degree."

CW: What is the best way to acquire database skills?

CASTALDI: "Most companies are willing to invest in people [train in the skill] once they're on board. They'll focus them into one area or another."

McCLURE: "Don't focus too specifically on individual database applications, but do try to become an expert in underlying principles such as designing a database so it can deliver performance. Pick Sybase or Oracle and learn it as a specific example so that in your career you can jump to the next hot ones."

CW: What qualities do you look for when hiring database professionals?

COOK: "Not everybody is [database]-able. It's lots of mental and physical work. They have to have the mental attitude to spend hours and hours on one finite detail. I don't see a lot of them with aspirations for upper management. They seem to be satisfied with the details and not overburdened by the larger picture."

PIPKIN: "We want people with good interpersonal skills. Having people who are not analytical, too technical has been a problem for us. We're trying to design open systems, make them readily available so there's more direct interaction between [database administrators] and users."



TOP DOLLAR

CW: Are certain industries or markets better than others for IS professionals with database skills?

PIPKIN: "I think database expertise is having a better-defined role in an open systems environment. You used to be just a space manager, but now there's data modeling, analyzing performance and tuning. There's more and more interesting work."

EICHMORN: "Telecom, [the World Wide Web], retail: in order to be competitive, they have to be more integrated with customers. This means storing, accessing and supplying data to more and more people." □

Menagh is a freelance writer in Maple Corner, IL.

Robert Castaldi is senior vice president and chief information officer at Lockheed Martin, IMS, a data services provider in Teaneck, N.J.

Paul Eichhorn is systems manager of networks at Deere, MacLean, a search firm in Chicago.

Polly Ann McClure is vice president and

CIO at the University of Virginia in Charlottesville.

Donald Cook is director of IS and technical services at the Naval Education and Training Professional and Technology Center in Pensacola, Fla.

Melanie Pipkin is IS project manager at Walt Disney World Co. in Orlando, Fla.

IT CAREERS INDEX

■ Hiring competition for IS professionals shows no signs of slowing in the months ahead, according to *Computerworld's* new monthly hiring forecast survey. More than 20% of IS managers say they will increase their full-time staffs in the next quarter and add temporary staff and contractors.

Source: QMS IS managers
March 1997 database

	Within 1 month		Within 12 months	
	Permanent	Temporary	Permanent	Temporary
Percent change in IS staff	1.9%	13.93%	2.42%	NA
Percent of managers increasing staff	20.7%	9.1%	21.39%	6.26%
Percent of managers decreasing staff	NA	NA	2.89%	4.02%
Percent of managers maintaining staff levels	NA	NA	75.72%	89.72%
Current staff mix	Permanent 95.1%		Temporary 4.9%	

IT Careers

The demand for skilled database professionals is growing, but it takes a certain mind-set to do this work

D B BANDIES

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TOP DOLLAR

IS hiring managers say database professionals can expect the following salaries this year:

CASTALDI

Entry level \$95,000-\$100,000
Midlevel \$40,000-\$45,000
Senior level \$60,000-\$80,000

EICHHORN

Entry level \$40,000
Midlevel \$50,000-\$55,000
Senior level \$60,000-\$70,000

McCLURE

Senior level \$80,000-\$90,000 (nonbanks)
Senior level \$90,000-\$100,000 (private sector)

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Base: 983 IS managers
National availability

	Within 3 months		Within 12 months	
	Permanent	Temporary	Permanent	Temporary
Percent change in IS staff	1.9%	13.93%	2.42%	NA
Percent of managers increasing staff	20.7%	9.1%	21.39%	6.26%
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Percent of managers maintaining staff levels	NA	NA	75.72%	89.72%
Current staff mix	Permanent 95.1%		Temporary 4.9%	

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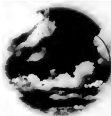

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These Midwest cities are desperate to lure, or create, new IS talent. Here's what they have to offer.

Low unemployment and cost of living, tall skies and cornfields, and wide open spaces. Information systems employment opportunities characterize the Midwest region that encompasses the metropolitan areas of Des Moines, Iowa, and Omaha and Lincoln, Neb.

The economy in the three cities is growing rapidly, salaries are competitive relative to the lower cost of living, and IS jobs across all major technology platforms are ripe for harvest. But before you plant career roots in these cities, here's what you should know:

By Leslie Goff

DES MOINES, IOWA

MARKET SUMMARY

Dominated by insurance companies, Des Moines is a Cobol town in need of qualified programmers. Client/server-related IS positions are less plentiful in the area. Major private-sector employers in the area include Allied Group (insurance), Amoco Customer Service Center (credit-card services), Blue Cross/Blue Shield of Iowa, Bridgestone/Firestone Tire & Rubber, The Principal Financial Group and US West Communications, Inc.

TOP IS JOBS AND SKILLS

Cobol application development, maintenance and migration; year 2000-related problem-solving.

BUSINESS CULTURE

Expect a 30-hour work week. Many entrepreneurial IS services firms are popping up, as local IS professionals leave full-time positions to contract themselves out at higher rates. "There's a stereotype that Des Moines is just a small farm community. But anyone who comes here knows it's just the opposite." — Kristin Solberg, IS recruiter, Executive Resources.

QUALITY OF LIFE

Strong family values area here. Moderate cost of living, slightly below the national average. Reasonable housing prices — a 1,300-sq-ft., three-bedroom home ranges from \$95,000 to \$130,000, and the average monthly rent for a two-bedroom apartment is \$499. Good local school systems.

MONEY MATTERS

Local employers will generally offer a salary increase of 10% to 12% to attract new IS employees. But salaries overall are lower than in major metropolitan areas. Solberg says a certified Windows NT administrator could make \$47,000 to \$53,000 a year. Starting salaries for Cobol programmers are about \$35,000 a year.

GET GOING

- Greater Des Moines Chamber of Commerce
www.dmochnamber.com
- Iowa Department of Economic Development
www.state.ia.us/trends
- Welcome to Iowa: The Smart State for Business
www.smart.state.ia.us

OMAHA

MARKET SUMMARY

The Bureau of Business Research at the University of Nebraska at Lincoln estimates that in the fourth quarter of 1996, roughly 40% of the available technical jobs in the area went unfilled because of a lack of qualified applicants. Major private-sector employers include First Data Resources, Mutual of Omaha, Union Pacific Railroad, MFS Communications and Cosagra, Inc.

TOP IS JOBS AND SKILLS

Client/server application development, migration and support; legacy application maintenance; telecommunications; electronic commerce; LAN/WAN administration; database administration.

BUSINESS CULTURE

A major technology park that supports private business and the University of Nebraska at Omaha will be completed by August 1999. It is expected to create 1,000 IS jobs in the next five years. The AIM Institute has been active in facilitating national IS recruitment, the development of client/server training and education opportunities, and local events for IS professionals.

QUALITY OF LIFE

Young professionals who seek an active singles lifestyle may not be attracted to Omaha. However, "Omaha was ranked one of the best cities for working moms, based on commute time, day care, quality of schools and jobs. So we have a great quality of life, but if you aren't from here or have never been here, Omaha is not a place that people think of moving to." — Vicki Meinhardt, vice president, First Data Credit Card Services Group.

MONEY MATTERS

Nebraska's average per capita personal income was \$23,208 in 1995. It has grown steadily since 1991, but it remains below the national average.

GET GOING

- Business Book Online
www.businessbook.com
- Accesa Omaha
www.acesaomaha.com
- The AIM Institute
www.aimia.org

MARKET SUMMARY

More than half of the technical jobs available in the fourth quarter of 1996 went unfilled because of a lack of qualified applicants, according to the Bureau of Business Research at the University of Nebraska at Lincoln.

Companies are strapped to find new talent to fill emerging and existing IS jobs. Major private-sector employers include Goodyear Tire & Rubber, Bryan Memorial Hospital, Gelpig, Inc., Sandoz Pharmaceuticals Corp. and Transcrypt International.

TOP IS JOBS AND SKILLS

Client/server application development, especially C and C++, SAP and Cobol.

BUSINESS CULTURE

The city of Lincoln and the University of Nebraska at Omaha have united to build the Nebraska Technology Park, a facility to support the growth of high-tech and manufacturing companies in the area. The food processing, pharmaceuticals, instruments and transportation equipment segments dominate local manufacturing. In the past 10 years, 30 new companies have moved into the area and more than 200 existing businesses have expanded.

QUALITY OF LIFE

Lincoln is the state capital, but it's also a college town, and the Cornhuskers rule. Homes cost about 10% less than the national average, and the crime rate, utility costs, insurance rates and Accra cost of living index are also all below the national average, according to the Chamber of Commerce.

MONEY MATTERS

See Omaha.

GET GOING

- Surf Lincoln
www.surflincoln.com/ld
- Bureau of Business Research
www.bbr.unl.edu
- Nebraska Department of Economic Development
www.ded.state.ne.us

Goff is a freelance writer in New York.

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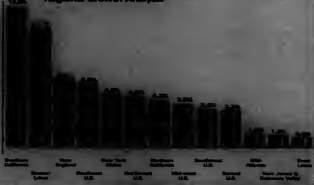
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NEW & NOTABLE

DataViz announces Desktop To Go™ for Pilot™ from U.S. Robotics

Synchronized data between Microsoft® Outlook™ and Pilot™

DataViz announced today Desktop To Go for Pilot which includes synchronizers for Microsoft Outlook and Lotus Organizer 97. Any additions, modifications and/or deletions made on either the desktop or Pilot are automatically updated on both machines.

Desktop To Go provides a variety of synchronization options for users. The standard synchronization option reconciles any changes made to either machine. Alternatively, users can synchronize

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Desktop To Go provides field level synchronization for contacts, appointments, tasks and memos. By using field level synchronization, a conflict will occur only when data has changed in the same field of a

particular record on both machines. If a conflict does occur, Desktop To Go provides the following resolution options: the conflicting records are added as duplicate records to both machines; Desktop To Go can override Pilot data or Pilot data can override desktop data.

Desktop To Go provides user customizable field mapping. Default field maps are included for each type of data and can be easily modified by the user for mapping such things as custom fields. The Desktop To Go

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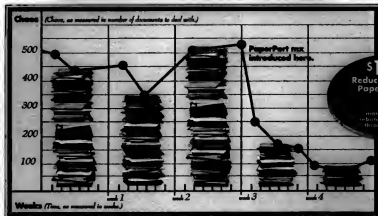
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PAPERPORT mx

COMMENTARY

What keeps Sun awake at night?

David Coursey

How does Sun view the world? I can't say definitively, because the company doesn't seem organized enough to have a consistent viewpoint on any but the most obvious issues. What I can tell you is what questions the company is asking.

Such questions are often a telling reflection of hopes, dreams, aspirations — and fears.

I know Sun's questions because I am about to be on a panel in front of 350 Sun vice presidents and directors. The other panelists are from Gartner Group and International Data Corp. I'm the token journalist. They called me "Dave" in the documents they sent over. If they had called me "Davey," I would have canceled.

So here are the most interesting of the questions (statements, actually) I'm supposed to ponder, along with the pithiest version of my answer:

1) *Java will loosen Microsoft's application programming interface (API) dominance in the marketplace, giving Sun a significant opportunity with desktop and server computers.*
In response, I'd state this another way:

"Java will give Microsoft another API to dominate in the marketplace. Sun will never be a significant desktop player and will lose servers if any piece of Java code can really run on any server. Or at least, Sun will become more of a commodity player as it loses the customer lock-in that Unix provides."

2) *Network computers will become widely accepted in both corporations and the channel by the year 2000.*

It isn't clear what "channel" refers to here, but wide acceptance by corporations means network computers will be sold by somebody. Network computers will drift toward commodity

status, but value-added by companies such as Network Computer, Inc. and Wyse Technology should create some differentiation.

3) *Sun and IBM will become the dominant players in the midrange and high-end server and storage markets.*

Perhaps by attrition. After all, Digital isn't likely to come bounding back — though its revenue is still stronger than Sun's, and anything is possible. Who else? Hewlett-Packard could play here and potentially be a stronger player than Sun. Silicon Graphics seems too problem-plagued. But it's as likely to be Compaq and IBM as IBM and Sun.

4) *Sun workstations continue to be a popular choice for power desktop users and the channel for years to come.*

In my PC-centric world, no power user has a Sun desktop, although I recognize the company's dominance in niche markets. It takes a very long time for a platform to die, but unless Sun can do the above its operating systems and manage

Java properly, its desktops will lose popularity with power desktop users.

5) *For Sun, technology innovation will be the most important weapon against Microsoft.*

"The most important weapon" sure won't be Sun's public-relations and marketing organizations. Java is a lucky happenstance, not the outcome of a strategic plan, and Sun doesn't seem to have the resources to fight off a hungry Microsoft.

Given those issues, technology innovation will have to be Sun's big gun against Microsoft. If Sun has anything, it's a bunch of smart people. They ought to be building things that everyone — not just wall-to-wall Sun shops — needs.

Looking at Sun, it's easy to see the Apple of five or six years ago. That doesn't mean the company will follow in Apple's footsteps. But unless Sun can do more to become a legitimate software company, rather than a hardware house that plays one on TV ... well, as I said, anything's possible. □

Coursey, an analyst and consultant, is editor of "Insay.com," an online newsletter about computer news. His e-mail address is david@coursey.com.

Letter-writers sure keep a columnist honest

Frank Hayes

"So you dined at the expense of a tool vendor again, eh?" That's how one reader started in on me after I suggested a few weeks ago that programmers — and managers — need to dump their stick-shift mentality about building systems.

I said it was time to quit fine-tuning and fiddling with code by hand and turn to tools that generate applications automatically. I also said the cost-effective way to get faster code is to invest in faster hardware, not to depend on developers to tweak programs by hand in ways that make them harder to maintain.

Naturally, my gentle reader ripped me up one side and down the other.

"Fine-tuning too costly? I have yet to find a tool that did not cost 'fine-tuning' to make it do what the user needed (never mind doodads)," the reader wrote. He offered some painfully explicit examples of how developers at his shop have spent the last 20 years working around the broken promises of development tools, from IBM's APS through CASE tools to PowerBuilder.

"We will stop 'hand-optimization' when the tools do what real people need," he wrote. "Until then, we will shift gears by hand because the auto-shifters left out the clutch."

Ouch. The really painful thing is, he's right. (About everything except my getting lunch from a tool vendor, anyhow.) And that's a lot more painful for corporate IS shops than for me.

After all, computer hardware is cheaper than ever. The cost of building software, supporting users and managing systems is higher than ever. And nobody in IS is getting the tools they need to do

any of those things automatically.

Another letter came after I wrote in a different column that we should expect software to pass clean through its testing cycle, just as we expect airplanes not to crash on their first flight.

"Hate to burst your bubble," the letter read, "but I worked for 15 years at McDonnell Aircraft. One of the problems

we constantly fought was the release of buggy software written by engineers who normally work responsible for the design of aircraft. They often told us that we shouldn't expect our software to be 100% since that wasn't the way they designed airplanes." So much for software engineering's role models.

And then there are the users. I keep preaching that IS needs to get closer to users, cooperate more with users, give users what they want. As if users — and their managers — all wanted the same thing.

"If user in our group needed himself to WordPerfect 7.0 and built some of

our forms as templates," another reader wrote. "We can't use them, because our manager has decided to hold off on the upgrade. But [the user] says he can't be left behind waiting for the company to get on with the upgrade. Most of our employees have not even touched the capabilities of 6.2. Go figure."

Ah, users. The dim bulbs are irritating, the clever ones infuriating. If only we could get a whole department of just one kind or the other, maybe we could deliver what each user needs without the management nightmare of a custom setup on each user's desktop.

But that seems unlikely. So do we give up on supporting users, improving software quality and making the best use of tools that we can? No. We can't afford not to do those things, even if we're not getting what we need from vendors, users and managers to do the job right. We've got to keep looking for ways to make it happen.

Even if it isn't as simple as some columnists make it out to be. □

Hayes is Computerworld's staff columnist.

His Internet address is frank_hayes@cs.com.

The Back Page

alt.cw

Disputes & pages from the fringes of the tech world frontier



Usenet forms

The following are recent Usenet newsgroup discussion threads found on the Internet. You can pick up the thread by entering keywords at the search engine www.dejanews.com.

■ "Why doesn't the ASCII character set include the cents sign?" (alt.folklore.computers)

■ "Network grooming" (comp.dcom.net.management)

■ "How many old Unix weenies read this group?" (comp.sys.unixsys)

■ "Millennium Bomb—The Movie" (comp.software.year-2000)

Apple still knows design



LIFELINE FOR LAPTOPS

Does your laptop battery let you down midflight? Xtend

Micro Products in Irvine, Calif., has developed the

PowerXtender adapter cable for use with the in-snap

power systems being installed by major airlines, includ-

ing Delta and American. The \$99 adapter also can be

plugged in to a car's cigarette lighter for



MS-WebTV

Watch for the following developments now that Microsoft owns WebTV:

■ The TV takes 2 minutes to start up.

■ To tape a ball game, you have to learn Visual Basic.

■ After a year, Microsoft "enhances" the signal, and your TV is no longer compatible.

■ Instead of "Seinfeld," you sometimes get "Error 404: Not Found."

1 Send your alt.cw contributions to webbels@cw.com. If your item is used, you'll receive a egg! T-shirt

Inside Lines

Exchange glitch bugs mega-users

Several large sites migrating users to Microsoft Exchange are up in arms over the fact that they have to take down the entire server in order to recover the contents of a single mailbox. Exchange 5.0 lacks a feature called single-user restores, which lets an administrator recover an individual's mailbox without taking the server off-line. The feature has been the subject of many heated messages on Exchange-oriented newsgroups. The Redmond, Wash.-based software giant has offered a delivery date for the feature, but several users said Microsoft told them it wouldn't be in the next release. Notes already supports single-user restores, users said.

MCI and the Holy Grail

Charles Helling, director of local services at MCI Metro in New York, is taking a multimedia approach toward preparing for the company's pending merger with British Telecommunications. "I've been attempting to build up an British culture by renting me Monty Python movies," Helling told members of the Communications Managers Association meeting in New York last week.

Go with the flow

We hear Cisco plans to provide NetFlow Switching, its IP network traffic-monitoring software, for its Catalyst line of LAN switches starting this summer. NetFlow Switching will soon be available for the San Jose, Calif., vendor's new three-slot Catalyst 5000 switch, its current five-slot Catalyst 5000 and the new 13-slot Catalyst 5000 switch.

EMC plans data warehousing help

Data center users have grown accustomed to EMC's software offerings, which are built around the Hopkinton, Mass., firm's Symmetrix disk storage systems that support both mainframe and Unix in one box. Next week in San Francisco, EMC will continue to please when it announces a tool that lets users move mainframe-based DB2 data over to Unix database format, industry sources said. Users can then use that DB2 data in Unix-based data warehousing or data mart applications.

Beyond the millennium

Ever wonder what's going to happen to all those year 2000 vendors once we enter the new millennium and their business dries up? Viasoft, Inc. is the first in this group to "articulate a credible answer" to that question, according to a report by Punk, Ziegler & Co., a New York-based investment boutique. Phoenix-based Viasoft plans to create a line of software tools related to the repository of data created in the process of solving the year 2000 problem and resell them to customers to help manage their applications.

Marines look for a few good games

MAK Technologies, Inc. in Cambridge, Mass., has won a contract to help create what is believed to be the first video game cofunded and co-developed by the Department of Defense and the entertainment industry. Tentatively titled MEU-31 after a U.S. Marine expeditionary unit, the game is expected to be used to train soldiers in amphibious warfare capabilities. According to MAK, previous video games used by the Marines were "flawed" from a military standpoint, because they contained unrealistic features such as infinite ammunition and characters who could be shot several times before they were injured.

Company buying Digital? It's the rumor that just won't die. Talk of a Digital takeover surfaced last week after Compaq posted strong sales and earnings results as Digital revenue continued to slide. One analyst speculated that a combined company, possibly dubbed ComDEC, would have the muscle to take on industry giants such as Hewlett-Packard and IBM. One rumor that Compaq confirmed is that takeover talks have taken place with Gateway 2000. If you have rumors, tips or video games, contact news editor Patricia Keefe at (508) 830-8183 or patricia.keefe@cw.com.

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Displays messages from the pages of the alt.cw forum



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